Grade 6 Standards

Ratios and Proportional Relationships
6.RP.A.01
6.RP.A.02
6.RP.A.03
6.RP.A.03a
6.RP.A.03b
6.RP.A.03c
6.RP.A.03d

The Number System
6.NS.A.01
6.NS.B.02
6.NS.B.03
6.NS.B.04
6.NS.C.05
6.NS.C.06a
6.NS.C.06b
6.NS.C.06c
6.NS.C.07
6.NS.C.07a
6.NS.C.07b
6.NS.C.07c
6.NS.C.08

Expressions and Equations
6.EE.A.01
6.EE.A.02a
6.EE.A.02c
6.EE.A.03
6.EE.A.04
6.EE.B.05
6.EE.B.06
6.EE.B.07
6.EE.B.08
6.EE.C.09

Geometry
6.G.A.01
6.G.A.02
6.G.A.03
6.G.A.04

Statistics and Probability
6.SP.A.01
6.SP.A.02
6.SP.A.03
6.SP.B.04
6.SP.B.05b
6.SP.B.05c
6.SP.B.05d

Ratios and Proportional Relationships
6.RP.A.01
Items 1 – 14

ITEM 1

In an aquarium, there are 6 female goldfish for every 10 male goldfish. If there are 216 female goldfish in the aquarium, how many male goldfish are in the aquarium?

A. 129

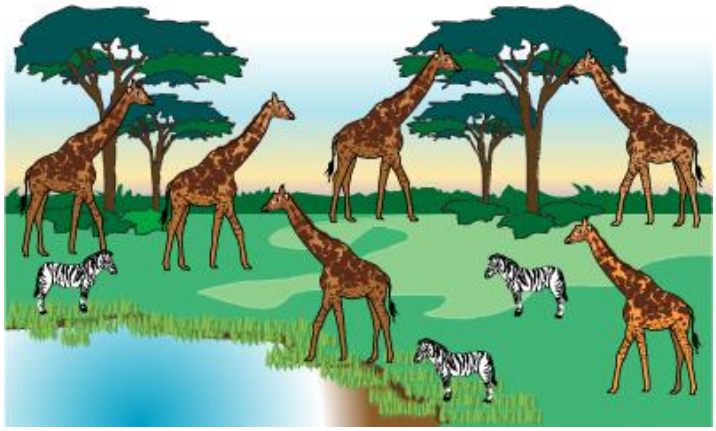
B. 226

C. 360

D. 576

ITEM 2

What is the ratio of zebras to giraffes shown in this picture?



A. 1 : 2

B. 1 : 3

C. 2 : 1

D. 3 : 1

ITEM 3

There are 30 students in Mr. Baker's music class. One day, 12 students played the recorder. What was the ratio of students who played the recorder to students who did **not** play the recorder?

A. 12 : 18

B. 18 : 12

C. 12 : 30

D. 30 : 12

ITEM 4

The ratio of boys to girls in the Drama Club is 1 **:** 2. Which picture **best** shows this ratio?

A. 

B. 

C. 

D. 

ITEM 5

Dwayne read that about three-fourths of Earth's surface is covered in water. Which conclusion can Dwayne make?

A. For every 3 square feet of Earth covered by water, there is 1 square foot covered by land.

B. For every 3 square feet of Earth covered by water, there are 4 square feet covered by land.

C. For every 4 square feet of Earth covered by water, there is 1 square foot covered by land.

D. For every 4 square feet of Earth covered by water, there are 3 square feet covered by land.

ITEM 6

In one forest in England, a species of moth appears in 2 forms. One form is black and the other form is gray. The ratio of black moths to gray moths is 2 : 7. Which picture shows the correct ratio of moths?

A. 

B. 

C. 

D. 

ITEM 7

Ms. Rigney drove 600 miles from Shreveport to Atlanta. She used 20 gallons of gas. What was the gas mileage of Ms. Rigney's car during the trip?

A. 20 miles per gallon

B. 30 miles per gallon

C. 570 miles per gallon

D. 630 miles per gallon

ITEM 8

Taylor uses 32 buttons for every 4 blouses that she sews. What is the ratio of the number of blouses to the number of buttons?

A. 1 : 4

B. 4 : 1

C. 8 : 1

D. 1 : 8

ITEM 9

Harry owns a car dealership. Last week, 8 out of every 11 cars Harry sold were small cars. If Harry sold a total of 33 cars last week, then how many small cars did he sell last week?

A. 8

B. 9

C. 24

D. 33

ITEM 10

Maurice raises Labrador retriever puppies. On average, out of every 14 puppies, 3 are yellow and 11 are black. Maurice estimates 42 puppies will be born next year. What is the expected number of yellow puppies that will be born?

A. 3

B. 9

C. 11

D. 14

ITEM 11

There are 32 students in Maria's class. One day, Maria brings 50 cookies to share with the class. 7 students are absent that day. Which statement is true?

A. There are 2 cookies per student.

B. There are 2 students per cookie.

C. For every 2 students, there are 2 cookies.

D. There is 1 cookie per student.

ITEM 12

Jennifer placed different colored marbles into a bowl. There are total of 36 marbles in the bowl. Of the 36 marbles, 12 are yellow, and 24 are purple. Describe the relationship that exists between the number of purple marbles and the number of yellow marbles in the bowl.

A. For every 2 yellow marbles, there is 1 purple marble.

B. For every 2 purple marbles, there is 1 yellow marble.

C. The ratio of yellow marbles to purple marbles is 1 to 3.

D. The ratio of purple marbles to yellow marbles is 2 : 3.

ITEM 13

A baseball team of 12 boys shares a set of 60 baseballs for hitting practice. If three more baseball players make the team, which statement would be true?

A. For each baseball player, there are 5 baseballs.

B. For each baseball player, there are 4 baseballs.

C. For every 5 baseball players there is 1 baseball.

D. For every 4 baseball players, there is 1 baseball.

ITEM 14

A day care center has 7 teachers for their after-school program. Currently, 42 students are enrolled in the after-school program. The center plans to divide the students equally among the teachers. If 7 more students enroll in after-school program, which statement would be true?

A. There are 3 students per teacher.

B. There are 6 teachers per student.

C. There are 7 students per teacher.

D. There are 7 teachers per student.

Ratios and Proportional Relationships
6.RP.A.02
Items 15 – 24

ITEM 15

After reading a nutrition article, Ms. Carter buys some *goji* berries from a health food store. She spends $8.00 on an 8-ounce bag. What is the **price per pound** of the *goji* berries?

A. $1.00 per pound

B. $8.00 per pound

C. $10.00 per pound

D. $16.00 per pound

ITEM 16

Molly bought a 6-foot sandwich for her family picnic. There are nine people in her family, including Molly. She wants to cut the sandwich so that each family member has an equal share to eat. What length of sandwich, in feet, will each family member receive?

A. $\frac{1}{9}$

B. $\frac{1}{6}$

C. $\frac{2}{3}$

D. $\frac{3}{2}$

ITEM 17

Chelsea is buying mini candy bars for her classmates. She has four different options for buying the candy bars. The list below gives different options for quantity and price.

Bag Options	Number of Mini Candy Bars	Price per Bag, in $
Small	30	3.60
Medium	50	4.50
Large	90	6.30
Extra Large	100	8.00

If Chelsea wants to spend the lowest amount per mini candy bar, then which option should she buy?

A. Small

B. Medium

C. Large

D. Extra Large

ITEM 18

Shania drove on the Interstate for 310 miles without stopping. If she traveled at a constant rate and the trip took her 5 hours, what was her rate in miles per hour?

Enter the correct number in the blank.

62

ITEM 19

Elijah is able to do 100 push-ups in 4 minutes. Assuming that he does this exercise at a constant rate, how long does it take him to do each push-up?

A. 25 minutes

B. 400 minutes

C. $\frac{1}{4}$ minute

D. $\frac{1}{25}$ minute

ITEM 20

Marcy bought a pack of 25 pencils for $1.50. What is the cost, in dollars, of 1 pencil?

Enter the correct number in the blank.

$0.06

ITEM 21

Phil bought a pack of 8 hamburger buns for $1.20. What is the cost per bun?

A. $0.15

B. $0.40

C. $6.67

D. $9.60

ITEM 22

A batch of homemade playdough calls for mixing 1 cup of water, 4 cups of flour, 3 tablespoons of oil, and 2 cups of salt. Sally has only 1 cup of flour but still wants to make a smaller batch. How much oil, in tablespoons, should she use?

A. 2 tablespoons

B. $\frac{4}{3}$ tablespoons

C. 1 tablespoon

D. $\frac{3}{4}$ tablespoon

ITEM 23

Rhonda rode her bicycle for 3 hours and traveled a total of 45 miles. If she kept a constant rate, what is her rate in hours per mile?

A. $\frac{1}{45}$

B. $\frac{1}{15}$

C. 135

D. 15

ITEM 24

Mr. Watson is looking through grocery store circulars for the best deal on cans of grape soda. Each store sells grape soda in different quantities. The table shows the costs for his buying options.

Store name	Quantity Options	Price
Monk's Market	24 cans	$7.68
Sean's Store	20 cans	$7.00
Greg's Grocery	12 cans	$6.00
Mickey's Mart	6 cans	$2.70

If Mr. Watson wants to buy grape soda from the store that offers the lowest price per can, then which store should he choose?

A. Monk's Market

B. Sean's Store

C. Greg's Grocery

D. Mickey's Mart

Ratios and Proportional Relationships
6.RP.A.03
Items 25 – 29

ITEM 25

The ratio of boys to girls at Louisiana Middle School is 3 : 5. If there are currently 1,600 students enrolled, then how many students at Louisiana Middle School are boys?

A. 200

B. 320

C. 600

D. 1,000

ITEM 26

The distance between two cities on a map is 17 centimeters. The scale on the map relates 5 centimeters on the map as 30 miles on the road. What is the actual distance, in miles, between the two cities?

A. 2.8

B. 8.8

C. 102

D. 2,550

ITEM 27

Darnell can buy a particular brand of fruit juice in a 6-ounce bottle or a 10-ounce bottle. The juice in a 10-ounce bottle contains 150 calories. How many calories are in the juice in a 6-ounce bottle?

A. 60

B. 90

C. 120

D. 250

ITEM 28

The ratio of boys to girls at Space Camp is 3 : 2. If there is a total of 60 campers, then how many of the campers are girls?

A. 12

B. 24

C. 36

D. 40

ITEM 29

Ben can use 3 cups of flour to make 2 batches of cookies. If he has 6 cups of flour, then how many batches of cookies can he make?

A. 4

B. 6

C. 9

D. 12

Ratios and Proportional Relationships
6.RP.A.03a
Items 30 – 40

ITEM 30

Cheyenne has a part-time job at which she gets paid by the hour. The table below shows how much money Cheyenne can earn for working various amounts of hours.

Number of Hours Worked	4	5	h	10	12
Amount Paid in $	32	40	56	80	96

How many hours, h, must Cheyenne work to earn $\$56.00$?

A. 6

B. 7

C. 8

D. 9

ITEM 31

Vivian is making gumbo for an upcoming party and needs to cook 10 cups of rice. Based on the information provided in the table, how many cups of water will she need?

Number of Cups of Rice	3	5	7
Number of Cups of Water	6	10	14

A. 5

B. 16

C. 18

D. 20

ITEM 32

Find the missing value in the following ratio table.

x	y
7	3
28	
42	18
56	24

Enter the correct number in the blank.

12

ITEM 33

Find the missing value in the following ratio table.

x	y
2	
6	27
10	45
16	72

Enter the correct number in the blank.

9

ITEM 34

The Morse family is planning a cookout and comparing prices of some of the items that they plan on purchasing. The prices of the various items are listed below.

Item	Quantity	Price, in $
Hamburger Buns	24	2.40
Hamburger Buns	36	3.24
Hamburger Patties	25	23.75
Hamburger Patties	50	31.50

Part A
Which pack of hamburger buns has the lower unit rate? Show your work or give an explanation.

The pack of 36 hamburger buns has the lower unit rate. If 36 buns cost $3.24, then 1 bun cost $0.09 (3.24 ÷ 36). If 24 buns cost $2.40, then each bun in this pack costs $0.10. Buying a 36-pack saves $0.01 per bun.

Part B
How much money *per hamburger patty* will the Morse family save if they buy the 50-pack of hamburger patties compared to the 25-pack of hamburger patties? Show your work or give an explanation.

If 50 hamburger patties cost $31.50, then 1 patty costs $0.63 (31.5 ÷ 50). If 25 hamburger patties cost $23.75, then 1 patty costs $0.95 (23.75 ÷ 25). The Morse family will save $0.32 per hamburger patty by purchasing the 50-pack instead of the 25-pack.

ITEM 35

Rayne is making a fruit smoothie. She is comparing four different recipes and created this table to organize the information.

Recipe Comparison		
	Number of Cups of Blueberries	**Number of Cups of Ice Cream**
Recipe A	3	2
Recipe B	4	3
Recipe C	1	4
Recipe D	2	5

If Rayne wants her smoothie to have the most blueberries per cup, which recipe should she use?

A. Recipe A

B. Recipe B

C. Recipe C

D. Recipe D

ITEM 36

The table shows how many gallons of gas it takes Martin to drive a certain number of miles.

Number of Gallons	Number of Miles
8	192
13	312
15	360

Using the same ratio of miles to gallons, how many miles can he drive with 5 gallons of gas?

A. 72

B. 120

C. 125

D. 144

ITEM 37

The table shows how the cost of fabric according to how many yards long the fabric is. Use the table to determine which **three** situations are **true**.

Length of Fabric, in Yards	Cost of Fabric, in Dollars
3	12
4	16
6	24
7	28

A. 5 yards of fabric will cost $20.

B. 12 yards of fabric would cost $48.

C. The ratio of the number of yards to the number of dollars is 4 : 1.

D. You can buy more than 8 yards of fabric for $40.

E. If x represents the number of yards and y represents the number of dollars, then the equation $y = 3x$ represents the values in the table.

ITEM 38

Jayden is dying eggs for Easter. After experimenting, she created a ratio for a perfect purple color. The following table shows the relationship between the various amounts of red dye and corresponding amounts of blue dye Jayden uses to make her perfect purple dye.

Number of mL of Red Dye	Number of mL of Blue Dye
12	14
24	28
48	?
72	84

If Jayden uses 48 milliliters of red dye, then how many milliliters of blue dye should she mix in to make her perfect purple dye?

Enter the correct number in the blank.

____56____ mL

ITEM 39

The table shows the relationship between amounts of money made for completing different numbers of chores.

Number of Chores	Amount of Money (in $)
3	12
5	20
8	32
12	48

Using the table, determine which **three** statements are correct.

A. 2 chores earns $8.

B. In order to make $24, 4 chores need to be completed.

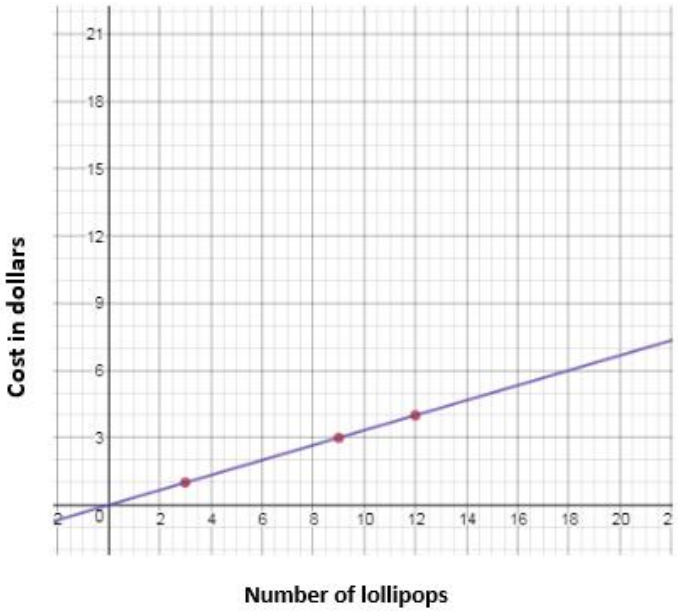
C. The ratio of dollars to chores is 4 to 1.

D. Sally made $36. Sammy completed 7 chores. Sally completed more chores than Sammy.

E. If x represents the number of chores completed and y represents the amount of money earned, then the equation $y = \frac{1}{4}x$ can be used to find the corresponding amounts of money earned for any number of chores.

ITEM 40

The coordinate plane shows the relationship between the number of lollipops, x, and the corresponding costs, y.



Which ordered pair identifies the cost of 6 lollipops?

A. (2, 6)

B. (6, 2)

C. (18, 6)

D. (6, 18)

Ratios and Proportional Relationships
6.RP.A.03b
Items 41 – 60

ITEM 41

Mr. Jones is starting a business and seeking a secretary. He has two applicants, Roxanne and Sam, and the tables show their typing rates in words per minutes. Mr. Jones wants to hire the applicant who can type more words per minute.

Roxanne's Typing Rate:

Number of Minutes	3	5	7	9
Number of Words	195	325	455	585

Sam's Typing Rate:

Number of Minutes	2	4	6	8
Number of Words	144	288	432	576

Part A
Mr. Jones wants to select Roxanne because he says that in only one additional minute she can type 585 words compared to Sam's 576 words. Does Mr. Jones' reasoning adhere to his hiring requirements of selecting the applicant with the faster typing rate? Show your work or give an explanation.

Mr. Jones' reasoning of hiring Roxanne does not adhere to his hiring requirements. Instead of just looking at the number of words for each applicant, Mr. Jones has to compare the relationship between the numbers of words and corresponding numbers of minutes. If Roxanne can type 195 words in 3 minutes, then in double the time, 6 minutes, she can type 390 words (195 x 2). When compared to Sam's 432 words in 6 minutes, Roxanne clearly types slower than Sam.

Part B
Which applicant can type more words per minute? Show your work or give an explanation.

Sam can type more words per minute. If he types 144 words every 2 minutes, then he types 72 words per minute (144 ÷ 2). If Roxanne can type 195 words every 3 minutes, then she can type 65 words per minute (195 ÷ 3). With each minute, Sam can type 7 more words than Roxanne.

ITEM 42

Ava and Jim are replacing the carpet in their home with ceramic tiles. Working together, they tiled a total of 480 square feet in 3 hours. They **each** tiled the same number of square feet. What is the unit rate of tiles laid per hour for each person?

A. 80

B. 160

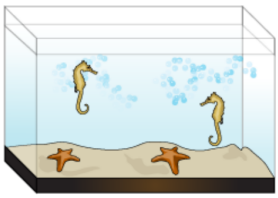
C. 240

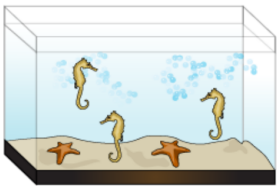
D. 720

ITEM 43

Which tank shows a 2 : 1 ratio of seahorses to starfish?

A. 

B. 

C. 

D. 

ITEM 44

Ms. Takeda wants to buy 120 reams of paper for her office. Brand X costs $45 for 10 reams. Brand Y costs $49 for 12 reams. Brand Z costs $55 for 15 reams. If all three Brands offer the same quality of paper, then which brand should Ms. Takeda buy to get the **best** deal?

A. Brand X

B. Brand Y

C. Brand Z

D. All Brands have the same unit price.

ITEM 45

It takes Bill two hours to wash 1 car. How many cars can he wash in 42 hours?

A. 12 cars

B. 21 cars

C. 42 cars

D. 84 cars

ITEM 46

The table shows the routes of four trains.

Train Routes		
Railway Name	**Number of Miles Traveled**	**Number of Hours**
Coastal Comet	300	10
Capital Corridor	180	4
Reading Railroad	400	8
Wildlife Express	120	6

Which train travels the greatest distance in the least amount of time?

A. Coastal Comet

B. Capital Corridor

C. Reading Railroad

D. Wildlife Express

ITEM 47

Jared bought 15 colored pencils for $9. At that rate, how much would it cost to buy 5 colored pencils?

A. $3

B. $6

C. $30

D. $45

ITEM 48

Jim can buy 2 cakes for $40. At that rate, how much will it cost to buy 4 cakes?

A. $10

B. $20

C. $80

D. $160

ITEM 49

Max drives 105 miles per week. If he drives an equal number of miles each day, then how many miles will Max drive in a 30-day month?

A. 15 miles

B. 135 miles

C. 450 miles

D. 3,150 miles

ITEM 50

How long would it take to travel 30 miles at an average speed of 50 miles per hour?

A. 0.5 hour

B. 0.6 hour

C. 1.5 hours

D. 1.66 hours

ITEM 51

Jordan can make 8 friendship bracelets in 3 days. At that rate, how many days will it take Jordan to make 40 bracelets?

A. 5

B. 8

C. 15

D. 24

ITEM 52

Mr. Patterson wants to buy the brand of socks that gives him the best deal per pair. The table shows prices for different packages of socks.

Brand	Number of Pairs of Socks	Price, in $
A-One Socks	1	1.69
Hop Around Socks	2	3.99
Super Socks	4	6.49
Lots of Socks	5	8.99

Which brand should Mr. Patterson buy?

A. A-One Socks

B. Hop-Around Socks

C. Super Socks

D. Lots of Socks

ITEM 53

Mark uses 3 cups of sugar to make 2 loaves of pumpkin bread. At that rate, how many cups of sugar should he use to make 7 loaves of pumpkin bread?

A. $4\frac{2}{3}$ cups

B. $10\frac{1}{2}$ cups

C. 21 cups

D. 42 cups

ITEM 54

Miles bought the Russian novel *Anna Karenina*. His paperback edition contains 992 pages. It takes him 3 days to read the first 50 pages. At this rate, about how many days will it take Miles to read the entire novel?

A. 20

B. 40

C. 60

D. 80

ITEM 55

Jason is working at a restaurant. In 3 hours, he can prepare and serve 123 meals. How many meals can Jsaon serve in 10 hours if he continues at the same rate?

A. 41

B. 123

C. 410

D. 1,230

ITEM 56

Paul rides his bike at an average speed of 16 miles per hour.
How long will it take Paul to complete a 100-mile race?

A. 6 hours 15 minutes

B. 6 hours 25 minutes

C. 26 hours 40 minutes

D. 26 hours 67 minutes

ITEM 57

A fisherman catches an average of 6 fish every 2 hours. At that rate, how many fish should he catch in 21 hours?

A. 29

B. 42

C. 63

D. 128

ITEM 58

While walking up a hill, Sue takes 300 steps to reach an altitude of 330 feet. The average height of each of Sue's steps is the same. If Sue continues up the hill, how many total steps must she take in order to reach an altitude of 1,210 feet?

A. 300 steps

B. 900 steps

C. 1,100 steps

D. 1,200 steps

ITEM 59

A concession stand charges $5.75 for 5 muffins. What is the cost per muffin?

A. $1.00

B. $1.15

C. $28.75

D. $10.75

ITEM 60

A train is traveling at the rate of 135 miles per hour. How far will the train travel in 3 hours?

A. 45 miles

B. 138 miles

C. 395 miles

D. 405 miles

Ratios and Proportional Relationships
6.RP.A.03c
Items 61 – 69

ITEM 61

Juanita keeps 25% of the monthly sales from her ice cream shop as profit. If the shop makes an average of $750 in sales this month, how much money will Juanita keep as profit this month?

A. $30.00

B. $187.50

C. $562.50

D. $725.00

ITEM 62

Darren flipped a quarter 40 times. The quarter landed on heads 65% of the time. How many times did the quarter land on tails?

A. 14

B. 26

C. 35

D. 65

ITEM 63

The cost of Jaime's heating bill in February was 120% of the cost of her heating bill in January. Jaime's heating bill in January was $\$90$. What is the cost of her heating bill in February?

A. $\$30$

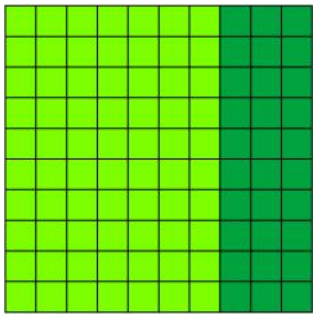
B. $\$75$

C. $\$108$

D. $\$210$

ITEM 64

The model represents the lawn Morgen is mowing. The light section represents the part of the lawn that he has already mowed. The dark section represents the part of the lawn that he still needs to mow.



What percent of the lawn does Morgen still need to mow?

A. 30%

B. 33%

C. 67%

D. 70%

ITEM 65

Dr. Walker surveyed 50 patients about the amount of time spent in the waiting room before their scheduled appointments. She found that 30 patients waited less than 15 minutes. What percent represents the number of patients surveyed who stayed in the waiting room for less than 15 minutes?

A. 15%

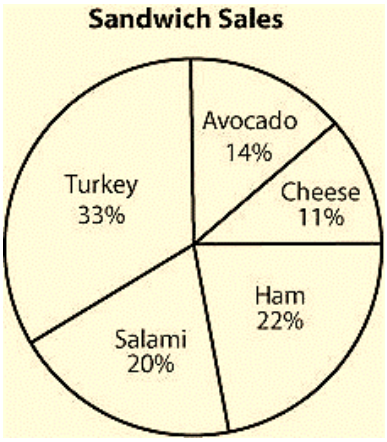
B. 30%

C. 50%

D. 60%

ITEM 66

This graph shows the sales percentages for different types of sandwiches at a deli.



The deli sold a total of 80 sandwiches. How many salami sandwiches were sold?

A. 4

B. 16

C. 20

D. 64

ITEM 67

When full, a fuel tank holds 175 gallons of fuel. How many gallons of fuel are in the tank when it is 40% full?

A. 40 gallons

B. 70 gallons

C. 105 gallons

D. 245 gallons

ITEM 68

Earl selects 8 toy cars to bring to show and tell at his daycare. These cars make up 40% of Earl's total toy car collection. What is the total number of toy cars that Earl owns?

Enter the correct number in the blank.

20

ITEM 69

Mikey bought a tablet at a discount of 40% off of the original price. If he paid $\$48$, then how much was the original price of the tablet?

A. $12.80

B. $19.20

C. $32.00

D. $80.00

Ratios and Proportional Relationships
6.RP.A.03d
Items 70 – 80

ITEM 70

Amy is playing a song on her banjo. She plays an average of 90 notes per minute in her song. What does she need to do to find the average number of notes per second?

A. Divide the notes per minute by 60

B. Subtract 60 from the notes per minute

C. Add 60 to the number of minutes per note

D. Multiply the number of minutes per note by 60

ITEM 71

Kim is observing a snail. She notes that the snail moves 6 inches in 10 minutes. Which rate is closest to the snail's speed in **feet per hour**?

A. 0.6 feet per hour

B. 3 feet per hour

C. 6 feet per hour

D. 36 feet per hour

ITEM 72

Daniel needs to print on paper with a surface area of 450 square centimeters, but the settings on his printer only work with square millimeters. What is the surface area of the paper in square millimeters?

A. 45 square millimeters

B. 450 square millimeters

C. 4,500 square millimeters

D. 45,000 square millimeters

ITEM 73

Kai has to order carpet for a house that has 1,800 square feet of floor space. The carpet is sold by the square yard. How many square yards of carpet does he need to order?

A. 200 square yards

B. 450 square yards

C. 600 square yards

D. 900 square yards

ITEM 74

Gary is installing square ceramic tiles on a floor with an area of 160 square feet. Each tile covers 16 square inches. How many tiles does he need to cover the floor?

A. 10

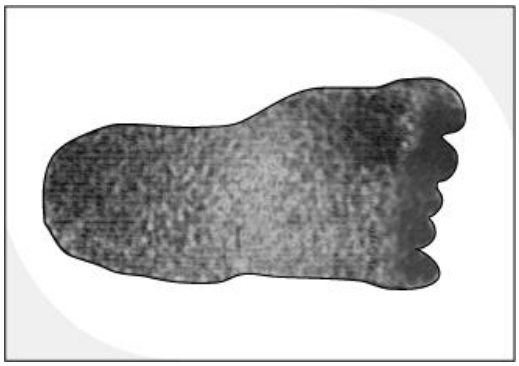
B. 120

C. 214

D. 1,440

ITEM 75

Marilyn sees a drawing of a footprint that was supposedly made by the creature “Bigfoot.”



The footprint covers an area of 3 square feet.
How many square inches does the footprint cover?

A. 432 square inches

B. 108 square inches

C. 36 square inches

D. 9 square inches

ITEM 76

There are 5280 feet in 1 mile. How many inches are in 4 miles?

A. 21,120

B. 190,080

C. 253,440

D. 316,800

ITEM 77

Tonya made this diagram to solve this problem:
How long it would take to travel 30 miles at an average speed of 45 miles per hour?

A. 20 minutes

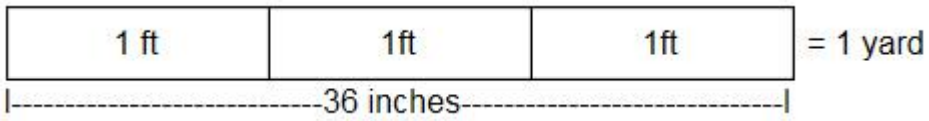
B. 30 minutes

C. 40 minutes

D. 45 minutes

ITEM 78

Adam made this diagram to solve this problem about measurement:
How many inches are in 4 yards?



Enter the correct number in the blank.

____144____

ITEM 79

Nelson completed his homework in $\frac{2}{5}$ of an hour. How many minutes did it take for him to complete his homework?

A. 10

B. 12

C. 24

D. 30

ITEM 80

There are 5,280 feet in 1 mile. How many inches are there in 3 miles?

A. 440

B. 63,360

C. 126,720

D. 190,080

The Number System
6.NS.A.01
Items 81 – 95

ITEM 81

Chloe has $4\frac{1}{2}$ cups of ice cream. One full serving is $\frac{2}{3}$ of a cup. How many full servings does Chloe have?

A. 3

B. 5

C. 6

D. 7

ITEM 82

Olivia and Ray walk to school. Olivia walks $\frac{1}{4}$ of a mile to school. Her walk is $\frac{2}{3}$ of the distance that Ray walks to school. What is the total distance, in miles, that Ray walks to school?

A. $\frac{1}{6}$ mile

B. $\frac{3}{8}$ mile

C. $\frac{5}{12}$ mile

D. $\frac{11}{12}$ mile

ITEM 83

Sandi cuts a $5\frac{1}{2}$-foot board into pieces that are each $\frac{1}{2}$ foot long. How many pieces will she have when she is done?

A. $2\frac{3}{4}$

B. $5\frac{1}{2}$

C. 6

D. 11

ITEM 84

The deli counter in a supermarket needs to distribute a ham that weighs $7\frac{1}{2}$ pounds into packages of sliced ham that weigh $\frac{1}{4}$ pound each. How many packages can be created from this ham?

A. 30

B. 28

C. 16

D. 15

ITEM 85

David has $\frac{5}{8}$ of a pie left over from dinner. He wants to divide it into 6 pieces so he and each of his five friends get $\frac{1}{6}$ of the remaining pie. What fraction of the **whole** pie does each person receive?

A. $\frac{1}{6}$

B. $\frac{3}{7}$

C. $\frac{5}{48}$

D. $\frac{11}{24}$

ITEM 86

Carlos is baking a cake. He is using a $\frac{3}{4}$ cup measuring scoop to add sugar to his cake mix. The recipe calls for $3\frac{3}{4}$ cups of sugar. How many scoops of sugar will Carlos need to use for the recipe?

A. 3

B. $4\frac{1}{2}$

C. 5

D. $6\frac{3}{4}$

ITEM 87

Sophia has a garden that has an area of $\frac{4}{5}$ of an acre. She wants to create sections within her garden that each have an area of $\frac{1}{10}$ of an acre. Which of the following correctly shows how many sections with an area of $\frac{1}{10}$ of an acre can Sophia have in her garden?

A. $\frac{4}{5} \div \frac{1}{10} = \frac{4}{2}$ She can have 2 sections since $\frac{4}{2} = 2$

B. $\frac{4}{5} \div \frac{1}{10} = \frac{40}{5}$ She can have 8 sections since $\frac{40}{5} = 8$

C. $\frac{1}{10} \div \frac{4}{5} = \frac{4}{2}$ She can have two sections since $\frac{4}{2} = 2$

D. $\frac{1}{10} \div \frac{4}{5} = \frac{5}{40}$ She can have $\frac{1}{8}$ section since $\frac{5}{40} = \frac{1}{8}$

ITEM 88

Martin needs several pieces of rope that measure $\frac{1}{8}$ yard in length. He has a long piece of rope that measures $\frac{3}{4}$ yard in length. How many $\frac{1}{8}$ yard pieces can he cut from the long piece of rope?

A. $\frac{1}{7}$

B. $\frac{1}{6}$

C. 6

D. 10

ITEM 89

Meagan brought home $2\frac{2}{3}$ pounds of sand from Grand Isle and divided the sand evenly into decorative bottles. If she plans to put exactly $\frac{2}{9}$ pound of sand into each bottle, what is the maximum number of bottles Meagan can fill with the sand she brought home?

A. $\frac{1}{18}$

B. 3

C. 9

D. 12

ITEM 90

A bag contains $\frac{6}{8}$ pound of oranges. One serving weighs $\frac{1}{4}$ pound. How many servings of oranges are in one bag?

Enter the correct number in the blank.

3

ITEM 91

Which situation can be represented by the expression, $\frac{4}{5} \div \frac{1}{8}$?

A. Ned has $\frac{4}{5}$ of cup of juice. He gave $\frac{1}{8}$ of a cup of his juice to his brother.
How much juice does he have left?

B. John plans on putting $\frac{1}{8}$ of a cup of sunflower seeds in each bag.
If he has $\frac{4}{5}$ of cup of sunflower seeds, how many bags can he fill?

C. Rob did his homework in $\frac{4}{5}$ of an hour. Brian finished his in $\frac{1}{8}$ of Rob's time.
How long did it take Brian to do his homework?

D. Rick lives $\frac{4}{5}$ of a mile away from the dollar store. He rode his bike $\frac{1}{8}$ of the way and then realized that he forgot his money.
How far did he travel before he realized that he forgot his money?

ITEM 92

Rickey is preparing a roast beef for his family. The roast beef weighs $2\frac{3}{4}$ pounds. If he wants to serve $\frac{1}{2}$ pound of meat to each family member, how many servings can he make?

A. $\frac{2}{11}$

B. $1\frac{3}{8}$

C. $5\frac{1}{4}$

D. $5\frac{1}{2}$

ITEM 93

A cook at a diner serves rice with the Salisbury steak. Each bag of rice contains $2\frac{1}{4}$ cups, and the cook plans on using $\frac{1}{3}$ of a cup for each serving. How many total servings of rice are in the bag?

A. $\frac{4}{27}$

B. $\frac{3}{4}$

C. $2\frac{7}{12}$

D. $6\frac{3}{4}$

ITEM 94

Shea is having a paint party. She has $\frac{3}{4}$ of a gallon of blue paint and $\frac{1}{2}$ of a gallon of pink paint. She plans to divide the paint into small amounts for her guests.

Part A

Shea wants to divide the blue paint into $\frac{1}{4}$-gallon portions. Write an equation that she can use to determine the number of portions of blue paint, b.

$\frac{1}{4} \cdot b = \frac{3}{4}$ or $b = \frac{3}{4} \div \frac{1}{4}$

Part B

Shea wants to divide the pink paint into $\frac{1}{10}$-gallon portions. Write an equation that she can use to determine the number of portions of pink paint, p. Solve the equation. Show your work.

$\frac{1}{10} \cdot p = \frac{1}{2}$

$p = \frac{1}{2} \div \frac{1}{10}$

$p = \frac{1}{2} \cdot \frac{10}{1}$

$p = 5$

ITEM 95

Desirae works in a gift shop. She received a large order that requires her to prepare 25 gift baskets. Each basket takes her $\frac{3}{4}$ of an hour to put together, and there are 5 baskets already assembled that Desirae can use for this order.

Part A
Write an expression or an equation that can be used to find the number of baskets Desiree can assemble in 6 hours.

$6 \div \frac{3}{4} = ?$

Part B
If Desirae spends 6 hours per day assembling gift baskets, how many days will it take her to complete the order? Show your work or give an explanation.

If Desirae spends 6 hours per day assembling gift baskets, then it will take her $2\frac{1}{2}$ days to complete the order. She has 20 baskets to assemble, and that will take her 15 hours.
$20\ baskets \cdot \frac{3}{4}\frac{hours}{basket} = 15\ hours$

If she can assemble 8 baskets in 6 hours ($6 \div \frac{3}{4} = 6 \cdot \frac{4}{3} = 8$), and if works for 6 hours a day, that means she assembles 8 baskets per day. In 2 days she will have assembled 16 baskets, and on the third day after three hours of work (half the time) she will have assembled the remaining 4 baskets (half of the 8 she can make each day). 8 + 8 + 4 = 20

The Number System
6.NS.B.02
Items 96 – 105

ITEM 96

Evaluate: $\mathbf{14,605 \div 23}$

A. 630

B. 635

C. 640

D. 678

ITEM 97

Evaluate: $\mathbf{26,349 \div 12}$

A. 2196.79

B. 2195.8

C. 2195.75

D. 2194.91

ITEM 98

Evaluate: $6331.5 \div 33.5$

A. 18.9

B. 189

C. 1890

D. 18,900

ITEM 99

A bulldozer that weighs 3,885 pounds is moving blocks of concrete that each weigh 84 pounds. How many blocks of concrete are equal to the weight of the bulldozer?

A. 46.25

B. 47.50

C. 3,801

D. 3,969

ITEM 100

Damien wants to download a 2,480-megabyte family reunion video from the Internet. He is able to download 96 megabytes per hour. Rounded to the nearest hour, how many hours will Damien need to download the entire file?

A. 24 hours

B. 25 hours

C. 26 hours

D. 27 hours

ITEM 101

Evaluate: $3592.6 \div 23$

A. 105.6

B. 1506

C. 156.2

D. 156.72

ITEM 102

Evaluate: $22{,}412 \div 26$

A. 710

B. 862

C. 866

D. 939

ITEM 103

Find the quotient for $4,278 \div 46$.

Enter the correct number in the blank.

93

ITEM 104

Find the quotient for $\mathbf{9108 \div 36}$.

A. 197.44

B. 252.36

C. 253

D. 285

ITEM 105

What is the quotient of $7800 \div 25$?

A. 311.25

B. 312

C. 31.5

D. 3.3

The Number System
6.NS.B.03
Items 106 – 116

ITEM 106

Evaluate: **55.7 × 0.6**

A. 0.3342

B. 3.342

C. 33.42

D. 3342

ITEM 107

Evaluate: $23.85 \div 0.15$

A. 1.59

B. 15.9

C. 159

D. 1590

ITEM 108

James has two empty honey jars. Each jar has an empty weight of 0.83 pound. After being filled with honey, the first jar weighs 3.71 pounds and the second jar weighs 3.64 pounds. What is the weight of the honey in the jars?

A. 5.69 pounds

B. 6.52 pounds

C. 7.35 pounds

D. 9.01 pounds

ITEM 109

Chanelle made a gold compound for jewelry by melting 0.656 kilograms of silver with 1.321 kilograms of gold. How many kilograms of gold compound did she produce?

A. 0.656 kilograms

B. 0.665 kilograms

C. 1.321 kilograms

D. 1.977 kilograms

ITEM 110

Fatima has a pile of gold dust with a mass of 1.999 grams. She wants to have exactly 2 grams of gold dust in the pile. How much gold dust does she need to add to the pile?

A. 0.001 gram

B. 0.0001 gram

C. 0.111 gram

D. 0.1111 gram

ITEM 111

Jesse has a 13.47-ounce bar of gold. He cuts 1.55 ounces off to make a piece of jewelry. How much gold is left in the bar?

A. 8.84 ounces

B. 9.32 ounces

C. 11.92 ounces

D. 15.02 ounces

ITEM 112

Which expression below is equivalent to $\mathbf{1.0947}$?

A. 1.23×0.89

B. $1.23 + 0.89$

C. $1.23 - 0.89$

D. $1.23 \div 0.89$

ITEM 113

Evaluate: 58.6×0.005

A. 0.0293

B. 0.293

C. 2.93

D. 29.3

ITEM 114

Evaluate: $98.34 \div 59.6$

Enter the correct number in the blank.

____1.65____

ITEM 115

What is the sum of 46.924 and 16.83?

Enter the correct number in the blank.

63.754

ITEM 116

Find the quotient for 24.3 and 22.5.

Enter the correct number in the blank.

1.08

The Number System
6.NS.B.04
Items 117 – 128

ITEM 117

Select the expression that is equivalent to the expression given.

$$\mathbf{24 + 56}$$

A. $8(3 \cdot 7)$

B. $8(3 + 7)$

C. $2(12 \cdot 7)$

D. $4(8 + 14)$

ITEM 118

Choose the expression that is equivalent to $32 + 56$.

A. $8(4 \cdot 7)$

B. $4(8 + 16)$

C. $4(8 \cdot 16)$

D. $8(4 + 7)$

ITEM 119

Carrie is cutting sheets of stickers to put in 4 gift bags. Each bag will contain the same number of stickers. If each sheet contains 22 stickers, then what is the fewest number of sheets Carrie can use so there are no stickers left over?

A. 1

B. 2

C. 3

D. 4

ITEM 120

Which pair of numbers shows a common factor **and** a common multiple of 15 and 18?

A. 3 and 60

B. 3 and 90

C. 5 and 180

D. 6 and 270

ITEM 121

Mr. Hebert's class has 36 students and Ms. Green's class has 30 students. For a math competition, both classes are divided into teams with the same number of students on each team. What is the largest possible number of students per team?

A. 3

B. 5

C. 6

D. 12

ITEM 122

Donny plans to raise mealworms and waxworms to sell as pet food to lizard owners. He wants to buy an equal number of each type of insect to start his business. Mealworms are sold in cartons of 250. Waxworms are sold in cartons of 200. What is the **least** number of cartons of each insect Donny will have to buy?

A. He will have to buy 2 cartons of each type.

B. He will have to buy 4 cartons of each type.

C. He will have to buy 4 cartons of mealworms and 5 cartons of waxworms.

D. He will have to buy 5 cartons of mealworms and 4 cartons of waxworms.

ITEM 123

Maywood is opening a new middle school. There are 48 sixth-graders, 64 seventh-graders, and 96 eighth-graders. For each grade's orientation, the principal wants to place students by grade-level into equally sized groups with no students left over. What is the **largest** number of students that could be placed in each group?

A. 8

B. 16

C. 24

D. 32

ITEM 124

Terrence owns a tire shop. He has a certain number of tires for 18-wheel trucks. He has the same number of tires for 4-wheel cars as he has for the trucks. If Terrence must replace all the tires on both trucks and cars, and has no tires left over, what is the **least** total number of trucks and cars that Terrence could service?

A. 2

B. 9

C. 11

D. 22

ITEM 125

Darlene wants to make fruit baskets for her friends. She has 15 apples and 18 bananas and wants to make every basket the same. If Darlene uses all of her fruit, what is the maximum number of baskets she can make?

A. 1

B. 3

C. 5

D. 6

ITEM 126

What is the least common multiple of 6 and 9?

A. 3

B. 15

C. 18

D. 54

ITEM 127

What is the greatest common factor of 30 and 75?

A. 5

B. 15

C. 105

D. 150

ITEM 128

What is the greatest common factor of 78 and 42?

A. 2

B. 3

C. 6

D. 7

The Number System
6.NS.C.05
Items 129 – 138

ITEM 129

Haley monitors the water level in a lake after a flood. The normal water level is 645 feet above sea level, and in the table she has recorded monthly measurements relative to the normal water level.

Water Levels	
Month	**Water Level (number of feet from normal)**
1	14
2	8
3	4
4	1
5	-2

What is the meaning of -2 for this situation?

A. The normal level of the lake is 643 feet.

B. The water level is 2 feet lower than normal.

C. The water level changed by 29 feet in 5 months.

D. The water level decreased 2 feet since last month.

ITEM 130

Dennis started hiking at sea level. He recorded his starting position as 0, then climbed upward. His elevation increased by 400 feet and he recorded his ending position as 400. Using this same method of measuring, a second hiker had a starting position of –40. Which statement describes the starting position of the second hiker?

A. The second hiker started 40 feet below sea level.

B. The second hiker started 40 feet above sea level.

C. The second hiker started 40 feet below the ending position of Dennis.

D. The second hiker started 40 feet above the ending position of Dennis.

ITEM 131

Which number can be used to represent a deposit of $\$12.00$?

A. -12

B. 0

C. 12

D. 24

ITEM 132

Joan dives to 110 feet below sea level. If Joan's depth can be represented by the number -110, then what number should be used to represent sea level?

A. -110

B. 0

C. $\frac{1}{110}$

D. 110

ITEM 133

Robbie was reviewing his bank account statement and noticed a debit of $\$43$. Represent the debit of $\$43$ using an integer.

Enter the correct number in the blank.

-43

ITEM 134

Shelly bought some stock. She monitored its activity the first week and recorded details in the table.

Day	Monday	Tuesday	Wednesday	Thursday	Friday
Activity	-45	-23	-7	38	67

What does the integer under Tuesday represent?

A. A gain of $\$23$

B. A loss of $\$23$

C. A profit of $\$23$

D. A credit of $\$23$

ITEM 135

Reegan spent $\$35$ on Pokemon cards. He was able to add 50 cards to his Pokemon collection. What integer can be used to represent the money he **spent**?

A. -50
B. -35
C. 35
D. 50

ITEM 136

The Mariana Trench is 36,070 ft below sea level. Mount Everest is 29,035 ft above sea level. What integer does sea level represent in this scenario?

Enter the correct number in the blank.

____0____

ITEM 137

The temperature dropped by 25° Fahrenheit. Use an integer to represent this temperature change.

Enter the correct number in the blank.

-25

ITEM 138

For a science project, Mark is tracking how much the temperature changes in four towns across the country. He recorded his first week's data in the table below.

Town	Town A	Town B	Town C	Town D
Temperature Change	-13	-21	6	12

Which town showed the greatest change in temperature in the first week, A, B, C, or D?

A. Town A

B. Town B

C. Town C

D. Town D

The Number System
6.NS.C.06a
Items 139 – 150

ITEM 139

Select **two** statements that describe the location of the opposite of 5 on a number line.

A. The opposite of 5 is located 5 units to the left of 5.

B. The opposite of 5 is located 5 units to the right of 5.

C. The opposite of 5 is located 5 units to the left of 0.

D. The opposite of 5 is located 10 units to the left of 5.

E. The opposite of 5 is located 10 units to the right of 5.

ITEM 140

Which of the following choices will make this comparison true?

_____ $>$ the opposite of -8

A. The opposite of -6

B. The opposite of the opposite of -10

C. The opposite of 12.

D. The opposite of the opposite of 9

ITEM 141

Which of the following choices will make this comparison true?

$$\_\_\_\_\_ < -(-\mathbf{15})$$

A. $-(-16)$

B. $-\big(-(-13)\big)$

C. $-(-20)$

D. $-(-(18))$

ITEM 142

Which **three** statements are **true**?

A. The opposite of the opposite of -35 is -35.

B. $-(0) = 0$

C. $-\big(-(-4)\big) = 4$

D. $-\big(-(-16)\big) = -16$

E. The opposite of the opposite of 12 is -12.

ITEM 143

Which description best identifies the location of the opposite of the opposite of -18 on a number line?

A. 18 units to the right of 0

B. 18 units to the left of 0

C. 18 units to the right of 18

D. 18 units to the left of 18

ITEM 144

Kelli has a bank balance of $\$16$. Chad has a bank balance of $-\$54$.
Select **three** statements that are true about this situation.

A. The opposite of Chad's balance is negative.

B. The opposite of Kelli's balance is negative.

C. The opposite of 0 is greater than Chad's balance.

D. The opposite of Chad's balance is greater than Kelli's balance.

E. The opposite of Kelli's balance is greater than the opposite of Chad's balance.

ITEM 145

What is the opposite of -26?

Enter the correct number in the blank.

26

ITEM 146

Evaluate: $-\left(-(-\mathbf{3})\right)$

A. -3

B. $-(-3)$

C. 0

D. 3

ITEM 147

If a point is plotted on a vertical number line 10 units above 0, where is its opposite located?

A. 10 units to the right of 0

B. 10 units to the left of 0

C. 10 units below 0

D. 10 units above 0

ITEM 148

A point on a number line is labeled as f. Its opposite is labeled as $-f$.
Which one of the following statements is true?

A. The distance between 0 and f is greater than the distance between 0 and $-f$.

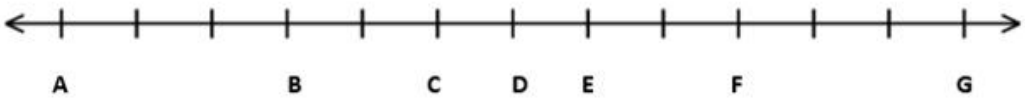
B. The distance between f and $-f$ is equal to the 2 times the absolute value of f.

C. The distance between 0 and f is greater than the distance between f and $-f$.

D. The distance between 0 and $-f$ is equal to the distance between f and $-f$.

ITEM 149

Use the number line to answer Parts A – C.



Part A

Point B and point F are opposites. What are their values?

Point B is located at -3 on the number line and point F is located at 3 on the number line.

Part B

Use your answer from Part A to explain how you know where 0 is located on the number line.

Opposites are the same distance from zero. If there is a distance of 6 units between points B and F, then three units to the right of point B and three units to the left of point F describes the same location, 0, which is labeled as point D.

Part C

Point A and point G are opposites. Explain how you can find their values.

Since points A and G are on the same number line as points B, D, and F, then point A is 6 units to the left of 0, or A = -6, and point G is 6 units to the right of 0, or G = 6.

ITEM 150

Three values on a number line are labeled a, b, and c.

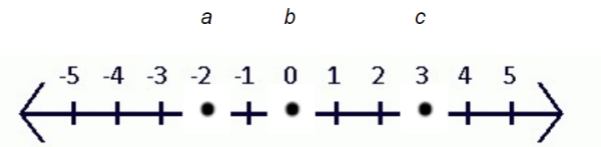
$$a = -3$$

$$b = -b$$

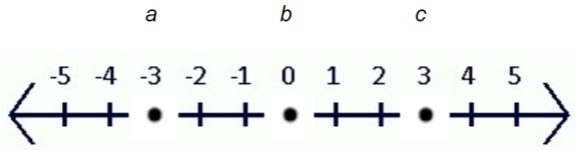
$$c = -a$$

Which number line correctly shows the values of a, b, and c?

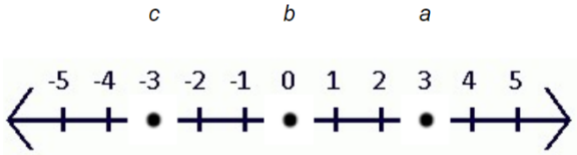
A.



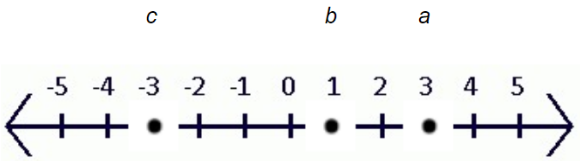
B.



C.



D.



The Number System
6.NS.C.06b
Items 151 – 159

ITEM 151

What are the coordinates of the point that is a result of reflecting $(4, -3)$ over the *y*-axis?

A. $(4,\ 3)$

B. $(-4,\ 3)$

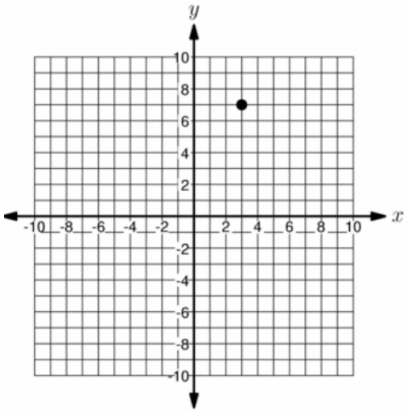
C. $(4,\ -3)$

D. $(-4,\ -3)$

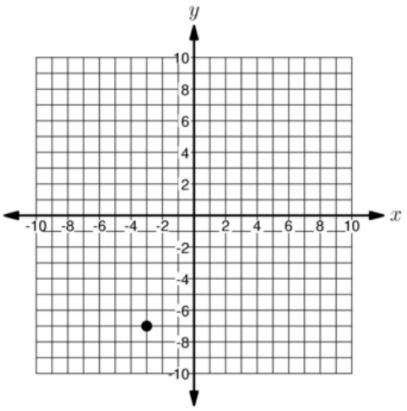
ITEM 152

Which coordinate plane shows a point plotted at $(3, -7)$?

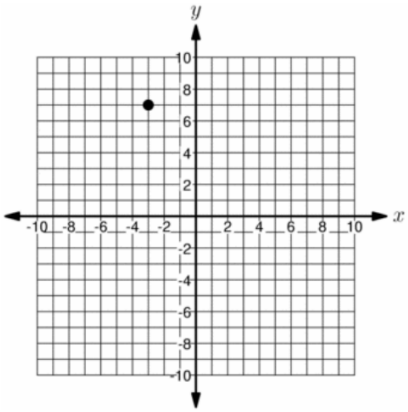
A.



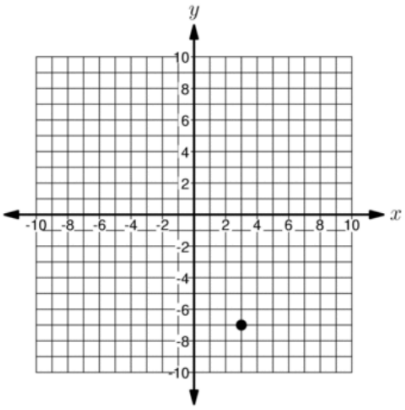
C.



B.



D.



ITEM 153

Amy plotted the following four points on a coordinate plane:

- point A: $(-2, -9)$
- point B: $(-2,\ 9)$
- point C: $(2, -9)$
- point D: $(2,\ 9)$

Which point is located in quadrant III?

A. point A

B. point B

C. point C

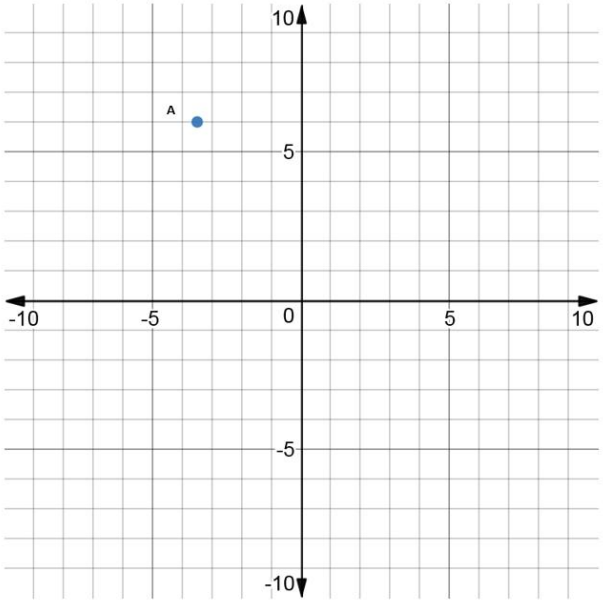
D. point D

ITEM 154

Part A

Point A is graphed on the coordinate plane. Reflect point A over the x-axis by plotting the point and labeling it point A'. Give the coordinates of point A'.

$A' = (-3.5, -6)$ This point will be plotted in quadrant III, 12 units directly below point A.



Part B

What similarities and differences exist between the coordinates of point A and point A'?

Reflection of a point over the *x*-axis changes the vertical distance only. Both points A and A' share the same *x*-coordinate, and the *y*-coordinate of point A' is the opposite of the *y*-coordinate of point A.

Part C

How would this situation change if point A was reflected over the y-axis instead of the x-axis?

(3.5, 6)

Reflection of a point over the *y*-axis changes the horizontal distance only. If point A was reflected over the *y*-axis, then the *y*-coordinate would remain unchanged but the *x*-coordinate of point A' would be the opposite of the *x*-coordinate of point A.

ITEM 155

In which quadrant of the coordinate plane is $(-4, 6)$ located?

A. Quadrant I

B. Quadrant II

C. Quadrant III

D. Quadrant IV

ITEM 156

Which statement is true about the two given points?

Point A $(9, -6)$
Point B $(-9, -6)$

A. Point B is a reflection of Point A over the x-axis.

B. Point A is a reflection of Point B over the y-axis.

C. Point A is located in Quadrant I and Point B is located in Quadrant II.

D. Point A is located in Quadrant I and Point B is located in Quadrant II.

ITEM 157

Point M is located at $(5, 2)$ on the coordinate plane.
If Point M was reflected over the x-axis, which statement would be true?

A. The reflected point would have the same y-coordinate as Point M.

B. The reflected point would be located in Quadrant II.

C. The reflected point would have the opposite y-coordinate of Point M.

D. The reflected point would be 5 units from the x-axis.

ITEM 158

A point located on the coordinate plane at $(-10, 7)$ is reflected over the y-axis. Which ordered pair describes the location of the reflected point?

A. $(-10, -7)$

B. $(10, -7)$

C. $(-10, 7)$

D. $(10, 7)$

ITEM 159

Which ordered pair would describe the new location if $(8, -1)$ was first reflected over the x-axis and then over the y-axis?

A. $(-8, 1)$

B. $(8, 1)$

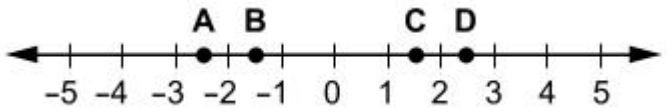
C. $(-8, -1)$

D. $(8, -1)$

The Number System
6.NS.C.06c
Items 160 – 162

ITEM 160

Which point on the number line represents the value, -2.5?



A. point A

B. point B

C. point C

D. point D

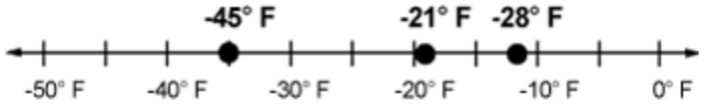
ITEM 161

Devon recorded these temperatures during the three coldest days of the year.

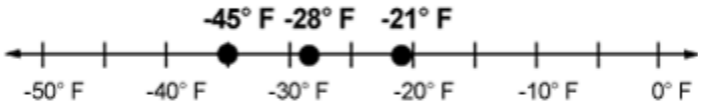
$$-21° F, -28° F, -45° F$$

Which number line shows the correct placement of these temperatures?

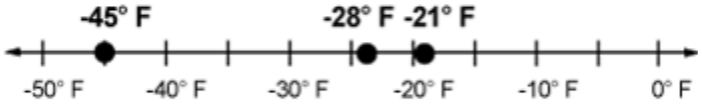
A.



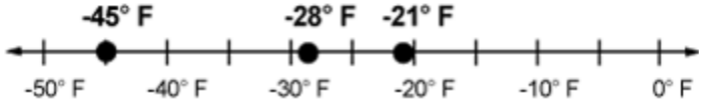
B.



C.



D.



ITEM 162

Point A is located in quadrant III of the coordinate plane at $(-2.5, -3)$.
What is the value of the x-coordinate of point A?

A. -3

B. -2.5

C. 2.5

D. 3

The Number System
6.NS.C.07
Items 163 – 164

ITEM 163

Select **three** inequalities that are **true**.

A. $-3 > -9$

B. $11 < -15$

C. $25 > -40$

D. $1 > -21$

E. $-8 > -6$

ITEM 164

Which comparison is **false**?

A. $4 < 5$

B. $\frac{4}{6} = \frac{6}{9}$

C. $-3 < -4$

D. $0.32 = 0.320$

The Number System
6.NS.C.07a
Items 165 – 168

ITEM 165

Which statement correctly describes the inequality, $-9 < 6$?

A. –9 is located to the right of 6 on a number line.

B. –9 is located to the left of 6 on a number line.

C. Both of the numbers are located on the left side of 0 on a number line.

D. Both of the numbers are located on the right side of 0 on a number line.

ITEM 166

Which statement correctly describes the inequality, $-5 < -2$?

A. –2 is farther left on the number line when compared to –5.

B. –5 is farther right on the number line when compared to –2.

C. –2 is farther right on the number line when compared to –5.

D. Both of the numbers are located on the right side of 0 on a number line.

ITEM 167

Wanda says that if $-3 > -8$ then it must be true that $3 > 8$. Is Wanda correct?

A. She is correct because only the signs change.

B. She is correct because 3 will always be to the right of 8 on a number line, negative or not.

C. She is incorrect because 3 will always be to the left of 8 on a number line, negative or not.

D. She is incorrect because 3 is to the left of 8 on a number line, which means that 3 is less than 8.

ITEM 168

The following four rational numbers are plotted on a horizontal number line:

$$\frac{1}{3} \quad -\frac{2}{7} \quad \frac{3}{8} \quad -\frac{4}{5}$$

Which statement about the order of the numbers on the number line is correct?

A. $-\frac{2}{7}$ is farthest to the left and $\frac{1}{3}$ is farthest to the right.

B. $-\frac{4}{5}$ is farthest to the left and $\frac{3}{8}$ is farthest to the right.

C. $\frac{1}{3}$ is farthest to the left and $-\frac{2}{7}$ is farthest to the right.

D. $\frac{3}{8}$ is farthest to the left and $-\frac{4}{5}$ is farthest to the right.

The Number System
6.NS.C.07b
Items 169 – 173

ITEM 169

Jasper designs lights for movie sets. One movie set has a light control where 0 represents normal light. The lighting can be made brighter by increasing the number on the light control, or darker by decreasing the number on the light control. Which number on the light control would make the movie set the **darkest**?

A. -7

B. -5

C. 4

D. 9

ITEM 170

The start of a movie is represented by the number 0.

- Ellie arrived 5 minutes before the movie started. The time she arrived is represented by the number –5.
- Brad arrived 5 minutes after the movie started.
- The number that represents the time Lauren arrived at the movie is –8.

In relation to the information given about the start of the movie and about Ellie's and Brad's arrival times, when did Lauren arrive at the movie?

A. After Brad arrived

B. Before Ellie arrived

C. After Ellie arrived but before the movie started

D. After the movie started but before Brad arrived

ITEM 171

Timothy has an account balance of $-\$67$. Bobby has an account balance of $\$4$.
Which statement explains who has more money?

A. Bobby has more money because $4 > -67$.

B. Bobby has more money because 4 is farther to the left on a number line compared to -67.

C. Timothy has more money because $-67 > 4$.

D. Timothy has more money because -67 is farther right when compared to 4.

ITEM 172

Which scenario can be modeled by the inequality, $1 > -5$?

A. The temperature in Boston, Massachusetts is $1°F$. The temperature in Hillsdale, Michigan is $-5°F$. It is colder in Boston than it is in Hillsdale.

B. Monty dug a hole that is 1 foot deep. Nina dug a hole that is 5 feet deep. Nina's hole is deeper than Monty's hole.

C. On Tuesday Katrina put $\$1$ in her piggy bank. On Wednesday she then took out $\$5$ from her piggy bank. She now has $\$10$ left in her piggy bank.

D. Location A is 1 foot above sea level. Location B is 5 feet below sea level. Location A is higher in elevation than Location B.

ITEM 173

Which statement about the temperatures $-15.8°C$ and $-15.6°C$ is **true**?

A. $-15.8°C < -15.6°C$ because $-15.6°C$ is colder than $-15.8°C$.

B. $-15.8°C < -15.6°C$ because $-15.6°C$ is warmer than $-15.8°C$.

C. $-15.8°C > -15.6°C$ because $-15.6°C$ is warmer than $-15.8°C$.

D. $-15.8°C > -15.6°C$ because $-15.6°C$ is colder than $-15.8°C$.

The Number System
6.NS.C.07c
Items 174 – 177

ITEM 174

The elevation of Death Valley is -86 meters. Which equation can answer the question, *at how many meters below sea level is Death Valley located?*

A. $|86| = 86$

B. $|86| = -86$

C. $|-86| = 86$

D. $|-86| = -86$

ITEM 175

Four students in Mr. Rodriguez's sixth grade class played a world geography game. The table shows their scores at the end of the game, and the winner has the score that is closest to zero.

Student	Score
Louise	5.5
Gene	-1.2
Linda	5.4
Tina	-3.9

Which student is the winner of the game?

A. Louise

B. Gene

C. Linda

D. Tina

ITEM 176

What is the absolute value of -10.5?

A. -10.5

B. 0

C. 1

D. 10.5

ITEM 177

Richard has an account balance of $-\$75$. Which equation describes the size of Richard's debt?

A. $-75 = 75$ meaning that Richard has a debt of $\$75$.

B. $|-75| = -75$ meaning that Richard has a debt of $-\$75$.

C. $|-75| = 75$ meaning that Richard has a debt of $\$75$.

D. $|75| = -75$ meaning that Richard has a debt of $-\$75$.

The Number System
6.NS.C.08
Items 178 – 184

ITEM 178

A contractor is using a coordinate grid to design a new restaurant. He places the points $(-6, 6)$ and $(6, 6)$ on the grid to begin the outline of the dining area. What is the distance between the two points?

A. 6 units

B. 12 units

C. 24 units

D. 36 units

ITEM 179

A map of the City of Hamilton is plotted on a coordinate grid.

- Rick's apartment is located at $(3, 5)$.
- The Shoe Store is located at $(3, 9)$.

How far is Rick's apartment from the shoe store?

A. 4 units

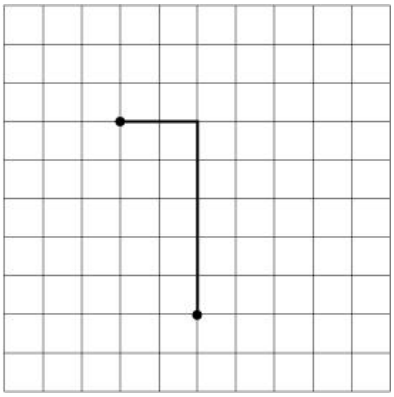
B. 9 units

C. 14 units

D. 20 units

ITEM 180

Ted drew the path on this grid.



How many units long is the path?

A. 6 units

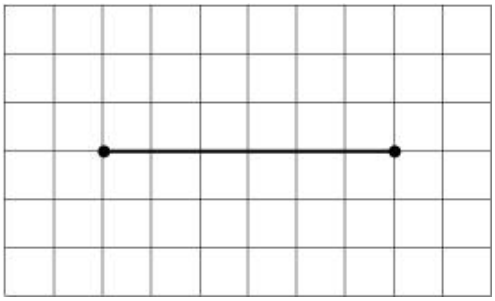
B. 7 units

C. 8 units

D. 9 units

ITEM 181

Carrie drew two points on a grid. Then she connected the points with a line segment.



How many units long is the line segment?

A. 4 units

B. 5 units

C. 6 units

D. 7 units

ITEM 182

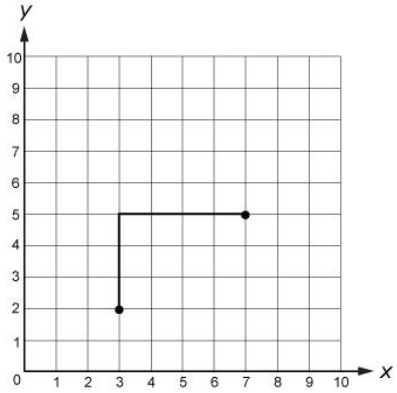
Logan drew the path on this grid. How many units long is the path?

A. 9 units

B. 8 units

C. 7 units

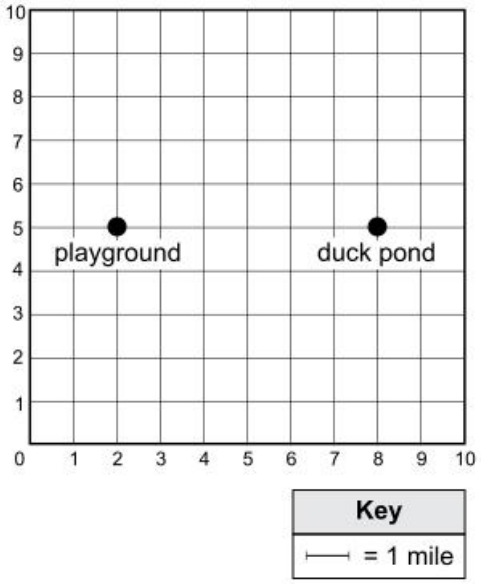
D. 6 units



ITEM 183

Jan is at City Park. She wants to watch the ducks when she is finished playing at the playground. She looks at the City Park Map to determine the distance from the playground to the pond.

CITY PARK MAP



What is the distance from the playground to the duck pond?

A. 8 miles

B. 5 miles

C. 6 miles

D. 7 miles

ITEM 184

A rectangle with the following four vertices is plotted on a coordinate plane:

- Vertex A is located at $(5.75, 6)$.
- Vertex B is located at $(-3.50, 6)$.
- Vertex C is located at $(-3.50, -4)$.
- Vertex D is located at $(5.75, -4)$.

What is the distance between vertex A and vertex B?

A. 0.25 unit

B. 2.25 units

C. 2.50 units

D. 9.25 units

Expressions and Equations
6.EE.A.01
Items 185 – 188

ITEM 185

Norman opened a savings account. The given expression represents the amount of money, in dollars, in his account at the end of the first month.

$$250(1 + 0.05)^0$$

How much money is in Norman's account at the end of the first month?

A. $1.00

B. $1.05

C. $250.00

D. $262.50

ITEM 186

Evaluate the expression: $2 \cdot 4^3$

A. 24

B. 86

C. 128

D. 512

ITEM 187

What is the value of 0.6^7? Round the value to the nearest thousandth.

Enter the correct number in the blank.

0.028

ITEM 188

Select the **three** equations that are **true**.

A. $4 \cdot 4 \cdot 4 \cdot 4 \cdot 4 = 5^4$

B. $4 \cdot 4 \cdot 4 \cdot 4 \cdot 4 = 4^5$

C. $4 \cdot 4 \cdot 4 \cdot 4 \cdot 4 = 4^4$

D. $2^3 = 2 \cdot 2 \cdot 2$

E. $3^2 = 2 \cdot 2 \cdot 2$

F. $3^2 = 3 \cdot 3$

Expressions and Equations
6.EE.A.02a
Items 189 – 192

ITEM 189

Which expression represents ***m decreased by 10***?

A. $10 - m$

B. $10 + m$

C. $m - 10$

D. $m + 10$

ITEM 190

Which expression represents ***6 less than m*****?**

A. $6 - m$

B. $m + 6$

C. $m - m - m - m - m - m$

D. $m - 6$

ITEM 191

Which expression represents ***8 less than x***?

A. $x + 8$

B. $x - 8$

C. $8 \cdot x$

D. $8 - x$

ITEM 192

Choose the expression that represents ***25 less than a number, n***.

A. $n - 25$

B. $n \div 25$

C. $25 - n$

D. $n + 25$

Expressions and Equations
6.EE.A.02c
Items 193 – 202

ITEM 193

Evaluate the expression when $w = 7$.

$$4(w - 3) + w$$

A. 23

B. 32

C. 35

D. 44

ITEM 194

Evaluate the expression when $n = 4$.

$$\mathbf{2 + 3\,n}$$

A. 5

B. 6

C. 14

D. 34

ITEM 195

Evaluate the expression when $x = 18$.

$$\frac{1}{2}x - 7$$

A. 1

B. 2

C. 11

D. 25

ITEM 196

Evaluate the expression when $x = 2$.

$$x^3 + 9$$

A. 14

B. 15

C. 17

D. 32

ITEM 197

Evaluate the expression when $x = 7$.

$$(4x + 9) - 4(x - 1) + x$$

A. 7

B. 20

C. 23

D. 68

ITEM 198

Evaluate the expression when $x = 3$.

$$\boldsymbol{x^2 + 10x + 24}$$

A. 86

B. 81

C. 63

D. 60

ITEM 199

Bruce earns money by mowing and weeding his parents' lawn. The amount he earns can be modeled with the expression $\boldsymbol{6h + 25}$, where $\boldsymbol{h}$ represents the number of hours Bruce spends weeding, and $\boldsymbol{25}$ represents how much he earns for mowing. How many dollars does Bruce earn if he mows the lawn and weeds for 3 hours?

A. $34

B. $43

C. $88

D. $93

ITEM 200

Evaluate the expression when $a = 5$, $b = 9$, $c = 3$, and $d = 6$.

$$\boldsymbol{a^2 + 4b \div 3c - 4d}$$

Enter the correct number in the blank.

____5____

ITEM 201

The formula $\boldsymbol{A = 6s^2}$ can be used to find the surface area of the cube with an edge length of $\boldsymbol{s}$. What is the surface area, in square inches, of a cube with an edge length of 5 inches?

A. 31

B. 60

C. 150

D. 900

ITEM 202

Evaluate the expression when $a = 2$, $b = 8$, $c = 4$, and $d = 9$.

$$\boldsymbol{a^3 + b - c^2 + d}$$

A. -9

B. 7

C. 9

D. 51

Expressions and Equations
6.EE.A.03
Items 203 - 208

ITEM 203

Identify the expression that is **not** equivalent to $\boldsymbol{6x + 3}$.

A. $5x + x + 3$

B. $3(2x + 1)$

C. $\frac{12x+6}{2}$

D. $3(2x + 3)$

ITEM 204

Which expression is equivalent to $\boldsymbol{a + b + b + 2 + a}$?

A. $2a + 2b$

B. $2ab + 2$

C. $2(a + b + 1)$

D. $2(a + 2b + 2)$

ITEM 205

Which one of the following expressions is equivalent to $\boldsymbol{6c}$?

A. $6 + c$

B. $c + c + c + c + c + c$

C. $6 + 6 + 6 + 6 + 6 + 6$

D. $6 \div c$

ITEM 206

Select **three** expressions equivalent to $\mathbf{36x + 18y}$.

A. $2(18x + 16y)$

B. $9(4x + 2y)$

C. $6(6x + 3y)$

D. $4(9x + 4y)$

E. $3(12x + 6y)$

ITEM 207

Select **three** expressions equivalent to $\boldsymbol{28xy + 16x}$.

A. $4(7xy + 4x)$

B. $4xy(7 + 4)$

C. $2x(14y + 8y)$

D. $4x(7y + 4)$

E. $2(14xy + 8x)$

ITEM 208

Michelle was instructed to write two equivalent expressions for $\boldsymbol{6x + 15}$.
Her work is shown.

- $\boldsymbol{6x + 15 = x + x + x + x + x + 15}$
- $\boldsymbol{6x + 15 = 6(x + 15)}$

Explain which one of Michelle's equations is **true** for all values of $\boldsymbol{x}$ and which one of Michelle's equations is **false** for all values of $\boldsymbol{x}$.

Michelle's first equation is true for all values of *x* because the sum of 6 groups of *x* and 15 is the same as the adding x six times plus 15. Multiplication is the same as repeated addition, so 6*x* = *x* + *x* + *x* + *x* + *x* + *x*.

Michelle's second equation is false for all values of *x*. The sum of 6 groups of x and 15 is not the same as the product of 6 and a sum of x and 15. 6(*x* + 15) expands to 6 groups of (*x* + 15), or (*x* + 15) + (*x* + 15) + (*x* + 15) + (*x* + 15) + (*x* + 15) + (*x* + 15), and this simplifies to 6x + 90.

Expressions and Equations
6.EE.A.04
Items 209 – 212

ITEM 209

Which equation is **true**?

A. $5m = m \cdot m \cdot m \cdot m \cdot m$

B. $k + k + k = k^3$

C. $6b = b + b + b + b + b + b$

D. $s \cdot s \cdot s \cdot s = 4^s$

ITEM 210

Which one of the following expressions evaluates to the same number as $\mathbf{5}\boldsymbol{r} + \mathbf{10}$ when $\boldsymbol{r} = \mathbf{3}$?

A. $5(r + 2)$

B. $r + r + r + r + r + 5 + 10$

C. $r(5 + 10)$

D. $5 + r + 10$

ITEM 211

Which one of the following expressions is equivalent to $\boldsymbol{a + a + b + b + b}$?

A. $a + 3b$

B. $2a + 3b$

C. $5 + a + b$

D. $5ab$

ITEM 212

Cheri and Sharon are finding equivalent expressions for the expression below.

$$\mathbf{6}(\boldsymbol{x}+\mathbf{2})+\mathbf{2}(\mathbf{3}\boldsymbol{x}+\mathbf{2}\boldsymbol{x})+\mathbf{20}$$

- Cheri claims the expression is equivalent to $\mathbf{16}\boldsymbol{x}+\mathbf{32}$.
- Sharon says that this expression is equivalent to $\mathbf{48}\boldsymbol{x}$.

Part A
Which girl's expression is equivalent to the original expression? Support your answer by showing how the original expression can be rewritten as an equivalent expression with the fewest terms.

Cheri's claim is correct.
$\mathbf{6}(\boldsymbol{x}+\mathbf{2})+\mathbf{2}(\mathbf{3}\boldsymbol{x}+\mathbf{2}\boldsymbol{x})+\mathbf{20}$
$\mathbf{6}\boldsymbol{x}+\mathbf{12}+\mathbf{6}\boldsymbol{x}+\mathbf{4}\boldsymbol{x}+\mathbf{20}$
$\mathbf{6}\boldsymbol{x}+\mathbf{6}\boldsymbol{x}+\mathbf{4}\boldsymbol{x}+\mathbf{12}+\mathbf{20}$
$\mathbf{16}\boldsymbol{x}+\mathbf{32}$
$\mathbf{6}(\boldsymbol{x}+\mathbf{2})+\mathbf{2}(\mathbf{3}\boldsymbol{x}+\mathbf{2}\boldsymbol{x})+\mathbf{20}=\mathbf{16}\boldsymbol{x}+\mathbf{32}$

Part B
Which girl's expression is not equivalent to the original expression? Support your answer by identifying the mistake(s) made when rewriting the original expression as an equivalent expression with the fewest terms.

Sharon's claim is incorrect. She may have distributed correctly to clear parentheses, but then added all of the values, constants and coefficients, and used it as one term with *x*.
$\mathbf{6}(\boldsymbol{x}+\mathbf{2})+\mathbf{2}(\mathbf{3}\boldsymbol{x}+\mathbf{2}\boldsymbol{x})+\mathbf{20}$
$\mathbf{6}\boldsymbol{x}+\mathbf{12}+\mathbf{6}\boldsymbol{x}+\mathbf{4}\boldsymbol{x}+\mathbf{20}$
$\mathbf{48}\boldsymbol{x}$

Expressions and Equations
6.EE.B.05
Items 213 - 218

ITEM 213

Find the value of the variable that makes the equation **true**.

$$7m = 210$$

A. 30

B. 35

C. 42

D. 105

ITEM 214

Solve the equation for the value of the variable.

$$\boldsymbol{24 = 6m}$$

A. 3

B. 4

C. 18

D. 24

ITEM 215

What value of *x* makes the equation true?

$$\boldsymbol{3 + x = 8}$$

A. 5

B. 8

C. 11

D. 24

ITEM 216

Which one of the following equations has the solution, $\boldsymbol{x = 6}$?

A. $\frac{x}{3} = 18$

B. $12x = 2$

C. $30 = x + 24$

D. $17 - x = 9$

ITEM 217

Marilyn is buying a birthday present for her son from his favorite store. She has a $\$25$ store credit that will help cover the cost of his gift. Marilyn wants to spend less than $\$31$ after applying the store credit. If $\boldsymbol{p}$ represents the cost of the present, then this situation can be modeled by the inequality,

$$\boldsymbol{p - 25 < 31}.$$

Which value could be a possible cost for the present and a solution to Marilyn's inequality?

A. 55

B. 56

C. 57

D. 58

ITEM 218

Let *x* represents any number in the set of odd integers less than 5.
Which inequality is true for all values of *x*?

A. $x < 0$

B. $x > 0$

C. $x < 5$

D. $x > 5$

Expressions and Equations
6.EE.B.06
Items 219 – 232

ITEM 219

Tory is saving money to buy a new drum for his drum set. The drum costs $\$235$. He has already saved $\$115$, and now he has $\$24.50$ more after mowing his grandmother's yard. Which equation can be used to find the amount of money, $\boldsymbol{n}$, that Tory still needs to save in order to buy the new drum?

A. $n - 115 + 24.50 = 235$

B. $115 + 24.50 + n = 235$

C. $235 + 24.50 + 115 = n$

D. $235 - 115 + 24.50 = n$

ITEM 220

Select the situation that can be modeled by the expression, $\mathbf{13}\boldsymbol{n} + \mathbf{6}$.

A. Shaunna went to the movies with some friends. She paid for all the tickets, which cost $\$6$ per ticket. She also bought a $\$13$ snack tray.

B. Ryleigh has 13 marbles. She gave some to her friend and then bought 6 more.

C. Pat bought some candles that cost $\$13$ per candle. She also bought one candle holder for $\$6$.

D. Katie has some bowls. She puts 6 apples in each bowl. She then places 13 grapes in each bowl.

ITEM 221

Which quantity can this expression represent?

$$\frac{3.65}{x}$$

A. The total weight of x fish that each weighs 3.65 pounds

B. The price per pound of fish when 3.65 pounds cost x dollars

C. The total price of 3.65 pounds of fish that costs x dollars per pound

D. The average weight per fish when the weight of x fish is 3.65 pounds

ITEM 222

Steve organized a charity basketball game. The cost of admission for everyone was $\$15$ per ticket, and the expenses for the concession stand and other necessities were $\$275$. Which expression can be used to find the total amount of money Steve made for his charity if he sold $\boldsymbol{b}$ tickets and paid the expenses?

A. $15b - 275b$

B. $15b - 275$

C. $15 + 275b$

D. $15 + 275$

ITEM 223

Billy is selling cookies at a bake sale. He made 6 pans of cookies and is selling them in bags with 3 cookies per bag. If c represents the number of cookies per pan, then which expression can be used to find the number of bags that Billy used?

A. $6c \div 3$

B. $6 \div 3c$

C. $6c \div 3c$

D. $6 + c \div 3$

ITEM 224

Karen went to an amusement park that charged $\$8$ for admission and $\$2$ per ride. She went on $\boldsymbol{n}$ rides. Which expression shows how much, in dollars, Karen spent in all?

A. $2 + 8n$

B. $2n + 8$

C. $2(n + 8)$

D. $8(n + 2)$

ITEM 225

A trophy with a blank plate costs $\$20$ and the engraving cost is $\$3$ per letter. Which expression models the cost of a trophy with $\boldsymbol{n}$ letters engraved?

A. $20 + 3 + n$

B. $(20 + 3)n$

C. $3 + 20n$

D. $20 + 3n$

ITEM 226

Which one of the following situations can be modeled by the expression?

$$h - 12$$

A. Shawna is reading a book that has h pages. She has 12 pages left to read. How many pages has she already read?

B. Rosie has driven a total of 12 miles. She has h miles left to drive until she reaches her destination. What is the total distance, in miles, for Rosie's trip?

C. Donald has h pencils then his friend Jimmy gave him 12 more. How many pencils does Donald have now?

D. Ryanne has completed h pages of her research paper. Her final draft must be 12 pages long. How many more pages does Ryanne have to complete?

ITEM 227

Tim brought $\$46.82$ into a hardware store. Hammers cost x dollars. Tim bought 5 hammers. Which expression shows how much money Time has left after he buys the hammers?

A. $46.82(x - 5)$

B. $x(46.82 - 5)$

C. $46.82 - 5x$

D. $46.82(5) - 5$

ITEM 228

During a clearance sale, all kites are $\frac{1}{2}$ off the regular price. Which expression shows the amount of money saved on a kite that had a regular price of x dollars?

A. $x \cdot 2$

B. $x \div 2$

C. $x + 2$

D. $2 \div x$

ITEM 229

Josh bought new basketballs for his P.E. class. He paid $\$15$ for each basketball and was charged a $\$20$ delivery fee. If b represents the number of basketballs, which expression can be used to find the total cost of Josh's purchase?

A. $15b - 20$

B. $20b + 15$

C. $20(b + 15)$

D. $15b + 20$

ITEM 230

Sheila bought 4 admission passes to the state fair and then spent $45 dollars on concessions. If p represents the price of one admission pass, then which expression models how much money Sheila spent?

A. $4 + p + 45$

B. $45p + 4$

C. $4p + 45$

D. $4(p + 45)$

ITEM 231

Delray Middle School is renting out the movie theatre for their 6th grade students. The movie theatre charges $\$3$ per student and a one-time privacy fee of $\$250$. Students can also receive a medium drink and popcorn for additional $4 per student.

Which expression represents the total cost, in dollars, to rent the movie theatre for s students, including the popcorn and drink for each student?

A. $3 + 4 + 250s$

B. $250 + 3s + 4$

C. $250 + 7s$

D. $257s$

ITEM 232

Mason rents a locker at the water park for a one-time fee of $7. He then rents a motorized scooter for $20 per hour. Which expression represents the total cost, in dollars, that Mason pays to rent the locker and the scooter for x hours?

A. $7 + 20x$

B. $20 + 7x$

C. $27x$

D. $13x$

Expressions and Equations
6.EE.B.07
Items 233 - 239

ITEM 233

After splitting the cost of the pizza with a friend, Maria spent $\$7.50$.
Which equation(s) represent the situation where x represents the total cost of the pizza?

Option	Equation
I	$\frac{x}{2} = 7.5$
II	$\frac{1}{2}x = 7.5$
III	$x - 2 = 7.5$

A. Option I only

B. Options II and III

C. Option III only

D. Options I and II

ITEM 234

Marla is jumping rope in her school's jump-a-thon to raise money for the school library. Marla's parents pledge $\$0.25$ for each time Marla jumps rope and write a check for $\$63.25$. This situation is modeled by the equation $0.25c = 63.25$, where c represents the number of times that Marla jumps rope in the jump-a-thon.

What is the value of c in the equation?

A. 16

B. 63

C. 64

D. 253

ITEM 235

Tom needs to attend flight school for more than 100 hours to get his license. He has already attended 15 hours. He will attend for h more hours. Which statement models this situation?

A. $15\text{h} = 100$

B. $15\text{h} > 100$

C. $15 + \text{h} = 100$

D. $15 + \text{h} > 100$

ITEM 236

Daniel makes this statement about a famous swimmer.

Wow! Even if I could swim twice as fast as I do now, he would still be faster than me.

Daniel can swim at a speed of d meters per second. Which inequality correctly models Daniel's statement about the speed, s, of the famous swimmer in meters per second?

A. $2d < s$

B. $2d > s$

C. $\frac{1}{2}d < s$

D. $\frac{1}{2}d > s$

ITEM 237

Jeannine has at most $\$5$ to spend on shipping a package. The shipping rates are $\$0.75$ per pound. Which inequality can be used to show the possible number of pounds, p, that Jeannine's package can weigh?

A. $0.75p \geq 5$

B. $0.75p \leq 5$

C. $0.75 + p \geq 5$

D. $0.75 + p \leq 5$

ITEM 238

A local middle school is solving math problems for a national competition. The table shows the number of problems that have already been completed by students in each grade level. The school's goal is to have students solve at least 1,000 problems total. Which inequality represents the number of additional problems students will need to solve in order for the school to reach the goal?

Grade Level	Number of Problems Completed
6	315
7	285
8	360

A. $x \leq 40$

B. $x \geq 40$

C. $x \leq 960$

D. $x \geq 960$

ITEM 239

Lisa wants to buy a new laptop to use for school work. She has already saved $\$79$. The laptop that she wants costs $\$799$, so she needs to raise an additional $\$720$. To raise money, she tutors for $\$15$ per hour.

Part A
Write an inequality that can be used to find the minimum amount of hours, h, that Lisa will need to tutor in order to purchase the laptop.

$15h + 79 \geq 799$

Part B
Determine the number of hours that Lisa needs to work as a tutor in order to earn enough money for her laptop purchase. Show your work or provide an explanation.

Lisa needs to tutor for 48 hours in order to make the additional $720 needed for her laptop purchase.

$$15h + 79 \geq 799$$
$$15h + 79 - 79 \geq 799 - 79$$
$$15h \geq 720$$
$$\frac{1}{15} \cdot 15h \geq 720 \cdot \frac{1}{15}$$
$$h \geq 48$$

Expressions and Equations
6.EE.B.08
Items 240 – 249

ITEM 240

The meat locker must have a temperature lower than 7 degrees Celsius. The number line models the temperatures of the meat locker.

Which inequality can be represented by this number line?

A. $x < 7$

B. $x > 7$

C. $x \leq 7$

D. $x \geq 7$

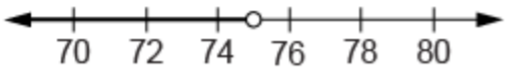
ITEM 241

Mr. Larson made this statement about the temperature in his house.

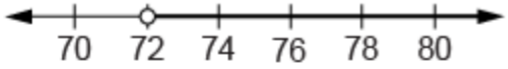
In my house it's always warmer than $72°\text{F}$ ***but colder than*** $75°\text{F}$***.***

Which number line could be used to represent the temperature in Mr. Larson's house?

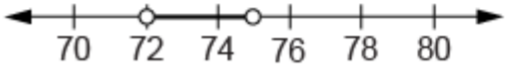
A.



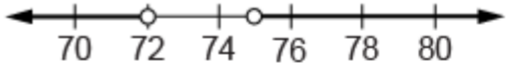
B.



C.



D.



ITEM 242

The graph below models the distance, in miles, that Javier plans to travel today.

Which statement is true?

A. Javier plans to travel at least 100 miles.

B. Javier plans to travel at most 100 miles.

C. Javier plans to travel fewer than 100 miles.

D. Javier plans to travel more than 100 miles.

ITEM 243

The weight allowed in the elevator in Kevin's apartment building is limited to no more than 758 kilograms. If *w* represents the maximum weight allowed in the elevator, then which inequality represents this situation?

A. $w > 758$

B. $w < 758$

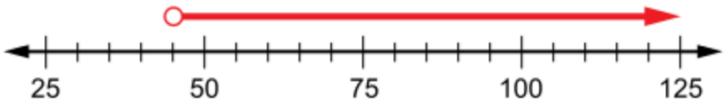
C. $w \leq 758$

D. $w \geq 758$

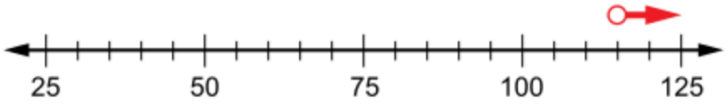
ITEM 244

Gene has $35. He will earn more than $80 next week and will use all of his money to buy clothes. Which number line shows all possible amounts of money, in dollars, that he will have to buy clothes?

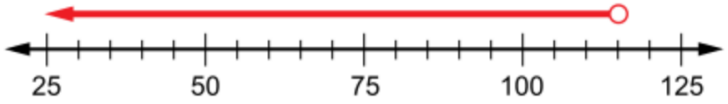
A.



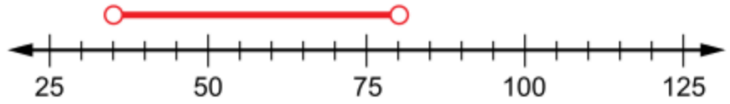
B.



C.



D.



ITEM 245

Hixon Middle School is holding a canned food drive. Students will be rewarded with computer passes if they bring in at least 10 cans. If c represents the number of cans each student brings in, which inequality represents the number of cans that must be brought in order to receive a pass?

A. $\mathbf{c} < 10$

B. $\mathbf{c} \leq 10$

C. $\mathbf{c} > 10$

D. $\mathbf{c} \geq 10$

ITEM 246

Which situation can be represented by the given inequality?

$$x < 23$$

A. Lisa worked more than 23 hours this week, where x represents the possible number of hours worked.

B. Jimmy has at least 23 dollars in his banking account, where x represents the possible amounts of money in his account.

C. The Glee Club will take no more than 23 members, where x represents the possible number of members they will take.

D. The toddler was shorter than 23 inches, where x represents the possible height of the toddler.

ITEM 247

Benji is planning to go to a concert, and he wants to surprise some of his friends by buying their tickets. He can buy the tickets online at a cost of $\$35$ per ticket. He doesn't want to spend more than $\$150$. Let x represent the number of tickets he plans to buy. Which inequality can be used to find the possible number of tickets that he could buy for the amount of money that he wants to spend?

A. $x > 4$

B. $x < 4$

C. $x \leq 4$

D. $x > 5$

ITEM 248

Simone's history report needs to be less than 4 pages long. If p represents the number of pages for the history report, which of the following inequalities best represents all acceptable lengths of Simone's history report?

A. $p < 4$

B. $p > 4$

C. $p \leq 4$

D. $p \geq 4$

ITEM 249

Nicholas is participating in a fundraiser to pay for a Student Council trip. He must sell at least 25 bags of popcorn in order to go on the trip. Using the variable b to represent bags of popcorn, which one of the following choices represents all possible numbers of bags of popcorn that Nicholas can sell in order to go on the trip?

A. $b = 25$

B. $b > 25$

C. $b \geq 25$

D. $b \geq 26$

Expressions and Equations
6.EE.C.09
Items 250 – 257

ITEM 250

Which situation can be represented by this equation?

$$y = 250x$$

A. A tree is 250 inches tall now. The variable x represents the number of inches the tree grows per year. The variable y represents the number of years the tree grows.

B. A stream has a flow of 250 gallons of water per minute. The variable x represents the number of gallons of water. The variable y represents the number of minutes the water flows.

C. A store sells toys for 250% of the manufacturing cost. The variable x represents the toy's manufacturing cost. The variable y represents the toy's selling price.

D. A refrigerator uses 250 kilowatt-hours of electricity per month. The variable x represents number of months the refrigerator runs. The variable y represents the total kilowatt-hours of electricity used.

ITEM 251

Randy uses the formula $d = 3m$ to predict the distance, d, that a spring is stretched by an object with a mass, m. Which table corresponds to Randy's formula?

A.

m	0	1	2	3
d	0	3	6	9

B.

m	0	3	6	9
d	0	3	6	9

C.

m	0	3	6	9
d	0	1	2	3

D.

m	0	1	2	3
d	0	3	3	3

ITEM 252

Ben builds custom ladders of varying heights. He uses this equation to determine the number of rungs, r, to put on a ladder that has a height of h feet.

$$r = \frac{4}{5}h$$

What is the independent variable in this situation?

A. the height of the ladder

B. the number of ladders

C. the space between rungs on the ladder

D. the total number of rungs on the ladder

ITEM 253

The table shows the number of nails, n, needed to build a display case using different numbers of shelves, s.

Number of Shelves s	Number of Nails n
2	30
4	60
5	75
7	105

Which equation represents the relationship shown in this table?

A. $15s = n$

B. $30s = n$

C. $s + 15 = n$

D. $s + 28 = n$

ITEM 254

Cara's school sells lunch tickets for $\$3.50$. She buys n tickets for the month. Which equation represents the cost, c, of Cara's tickets?

A. $n = 3.5c$

B. $c = 3.5n$

C. $c = 3.5 + n$

D. $n = 3.5 + c$

ITEM 255

Steve opened a bank account. He plans to deposit $\$35$ every month. Select the equation that models the total amount of money, t, deposited after m months.

A. $\mathrm{mt} = 35$

B. $35\mathrm{t} = \mathrm{m}$

C. $\frac{35}{\mathrm{m}} = \mathrm{t}$

D. $\mathrm{t} = 35\mathrm{m}$

ITEM 256

Joyce has been driving at a constant speed for 4 hours and has traveled a total of 300 miles. Ashley has been driving at a constant speed for 5 hours and has traveled a total of 350 miles. Both women will continue traveling at their respective constant speeds until they have traveled for a total of 7 hours.

Part A
Create **two** equations that can be used to determine the number of miles, m, each woman has traveled after h hours.

The equation that Joyce can use to determine the number of miles, *m,* after *h* hours is $m = 75h$.
$300 \div 4 = 75$. 300 miles in 4 hours = 75 miles per hour

The equation that Ashley can use to determine the number of miles, *m,* after *h* hours is $m = 70h$.
$350 \div 5 = 70$. 350 miles in 5 hours = 70 miles per hour

Part B
Using your equations in Part A, determine who would travel farther in 7 hours. Show your work or explain your answer.

Joyce will travel farther in 7 hours. She will travel 35 miles farther than Ashley.
Joyce: $m = 75h$ $m = 75(7)$ $m = 525$
Ashley: $m = 70h$ $m = 70(7)$ $m = 490$

ITEM 257

Coach Smart's track team is selling pizza kits in order to raise money to attend the State Track Competition. The pizza kits cost $\$24$ each. The team needs to raise $\$1{,}500$ in order to have enough money for the team to travel and compete in the competition. After the first month of sales, the team has sold a total of 43 kits.

Part A
Write an equation for the amount of money, m, that will be collected if p pizza kits are sold.

$m = 24p$

Part B
How many more kits does the team need to sell in order to reach their goal of $\$1{,}500$?
Show your work or give an explanation.

The team needs to sell 20 more kits in order to reach their goal of $1500.

$$
\begin{aligned}
1500 &\leq 24p + 24 \cdot 43 \\
1500 &\leq 24p + 1032 \\
1500 - 1032 &\leq 24p + 1032 - 1032 \\
468 &\leq 24p \\
\tfrac{1}{24} \cdot 468 &\leq 24p \cdot \tfrac{1}{24} \\
19.5 &\leq p
\end{aligned}
$$

If the team needs to sell at least 19.5 kits, this must be rounded up to 20 kits because half of a kit cannot be sold.

Geometry
6.G.A.01
Items 258 – 265

ITEM 258

If the base of a right triangle is 6.5 inches and the height of the right triangle is 9 inches, what is the area of the triangle?

A. 22 in^2

B. 24.5 in^2

C. 29.25 in^2

D. 58.5 in^2

ITEM 259

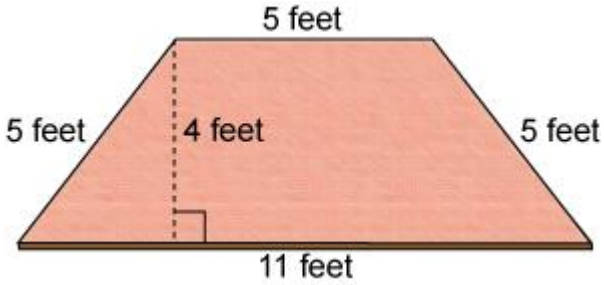
A discount store sells scraps of carpet for $1 per square foot. A particular scrap is shaped like a trapezoid. How much will this trapezoidal scrap cost?

A. $20

B. $32

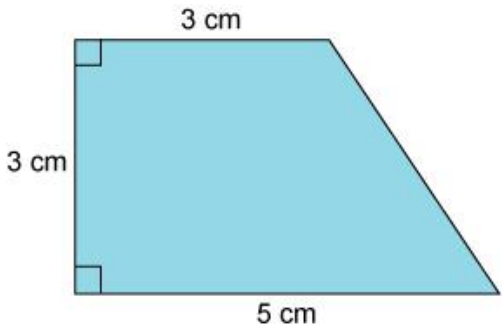
C. $44

D. $55



ITEM 260

What is the area of the trapezoid?



A. 11 square centimeters

B. 12 square centimeters

C. 13 square centimeters

D. 15 square centimeters

ITEM 261

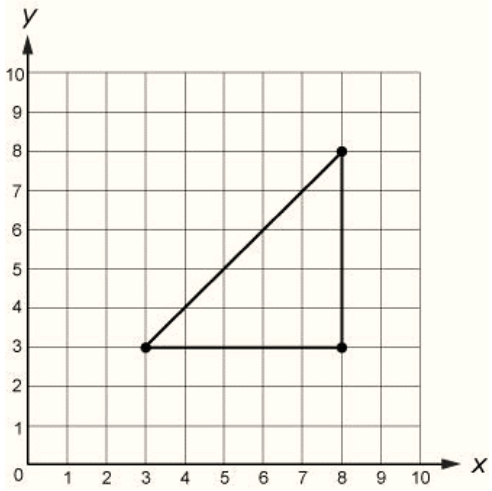
What is the area of the triangle plotted on the coordinate plane?

A. 7.5 square units

B. 12.5 square units

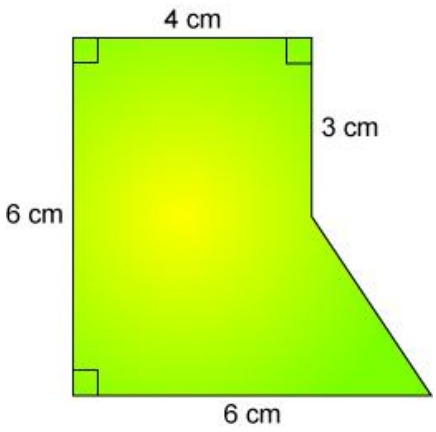
C. 15 square units

D. 25 square units



ITEM 262

What is the area of this pentagon?



A. 36 square centimeters

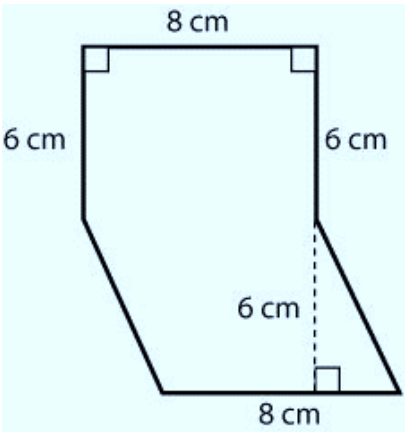
B. 30 square centimeters

C. 27 square centimeters

D. 24 square centimeters

ITEM 263

What is the area of this hexagon?



A. 36 square centimeters

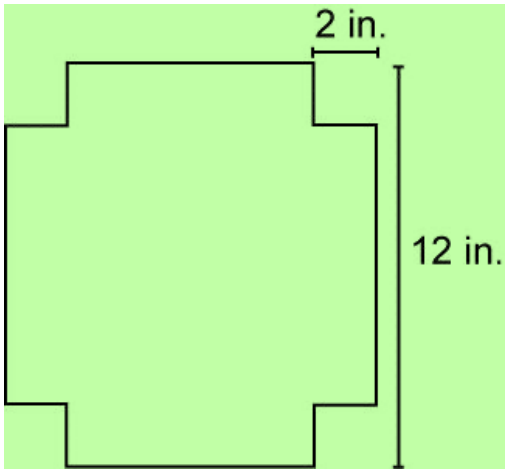
B. 48 square centimeters

C. 72 square centimeters

D. 96 square centimeters

ITEM 264

Eli cut out a 12-inch square. Then he cut off 2-inch squares from each corner of his large square.



Which expression can be used to find the remaining area of the larger square?

A. $12^2 - 2^2$

B. $12^2 - 2 \cdot 2^2$

C. $12^2 - 4 \cdot 2^2$

D. $12^2 - (4 \cdot 2)^2$

ITEM 265

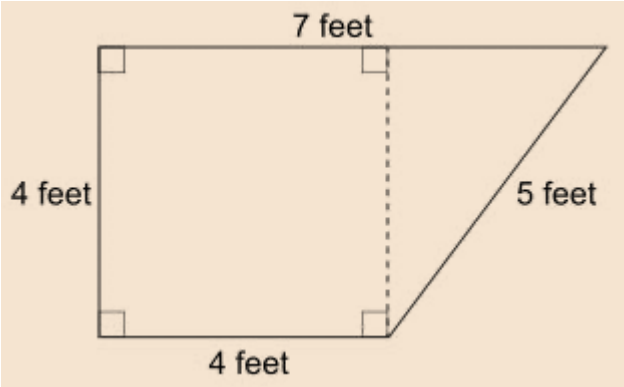
Mary has a closet floor that is shaped like a trapezoid. She drew a scale drawing of her closet floor and says she can find the area of this floor by subdividing the diagram as shown. Which expression can Mary use to find the area of the closet floor?

A. $4 \cdot 4 + \frac{1}{2} \cdot 3 \cdot 4$

B. $4 \cdot 4 + \frac{1}{2} \cdot 3 \cdot 5$

C. $4 \cdot 7 + \frac{1}{2} \cdot 3 \cdot 4$

D. $4 \cdot 7 + \frac{1}{2} \cdot 3 \cdot 5$



Geometry
6.G.A.02
Items 266 – 270

ITEM 266

How many $\frac{1}{2}$-inch cubes fit into a rectangular prism that measures 4 inches long, 5 inches wide, and $6\frac{1}{2}$ inches high?

A. 130

B. 260

C. 780

D. 1,040

ITEM 267

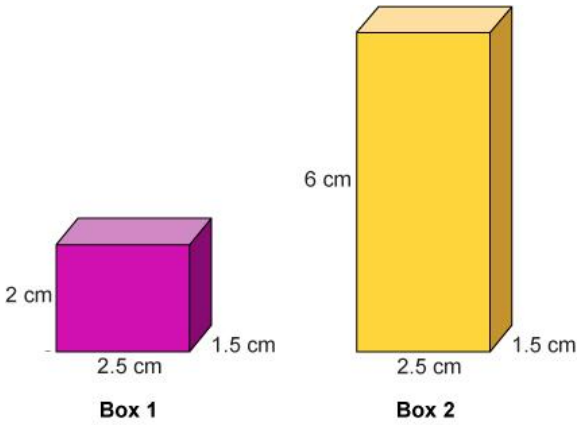
Katie has these 2 boxes shaped like rectangular prisms. How do the volumes of the two boxes compare?

A. Box 2 and Box 1 have the same volume.

B. Box 2 has 3 times the volume of Box 1.

C. Box 2 has 9 times the volume of Box 1.

D. Box 2 has 27 times the volume of Box 1.



ITEM 268

A cereal manufacturer introduces a new jumbo-sized box of cereal. This information is on a memo to stores that will sell the new size.

MAKE ROOM ON YOUR SHELVES

Dear Seller of Bran® Cereal:

We are delighted to inform you that a new jumbo size is coming soon. Here is how the larger box compares to the regular size of Bran that you already sell.

- *The height of both boxes is the same.*
- *The width of the jumbo size is 1.4 times as large.*
- *The depth of the jumbo size is 1.2 times as large.*

We look forward to providing your customers ever-larger boxes of Bran! Let us know how customers enjoy the product.

How do the volumes of the two boxes compare?

A. The volume of the jumbo box is 1.2 times as large as the volume of the regular box.

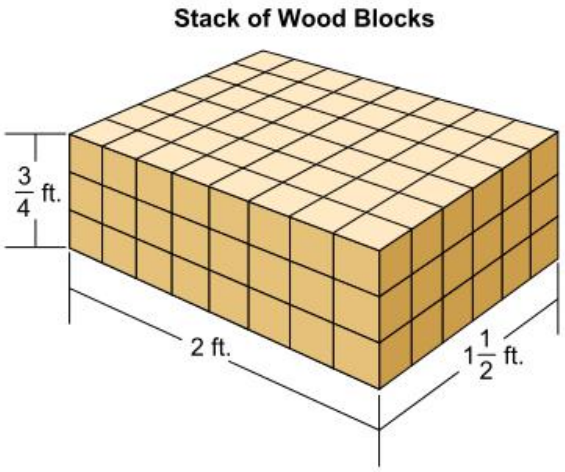
B. The volume of the jumbo box is 1.4 times as large as the volume of the regular box.

C. The volume of the jumbo box is 1.68 times as large as the volume of the regular box.

D. Not enough information is given to solve the problem.

ITEM 269

Desiree has a stack of wood blocks. The edge length of each wood block is $\frac{1}{4}$ foot. The stack is in the shape of a rectangular prism as shown below.



What is the volume, in cubic feet, of the stack of wood blocks?

A. $2\frac{1}{4}$ cubic feet

B. $3\frac{2}{3}$ cubic feet

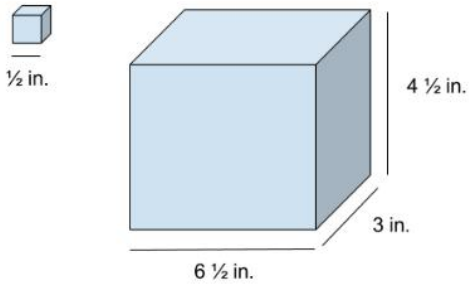
C. $4\frac{1}{4}$ cubic feet

D. $4\frac{1}{2}$ cubic feet

ITEM 270

Small cubes with edge lengths of $\frac{1}{2}$ inch will be packed into the right rectangular prism shown. How many $\frac{1}{2}$ inch cubes are needed to completely fill the right rectangular prism?

Enter the correct number in the blank.



702

Geometry
6.G.A.03
Items 271 – 272

ITEM 271

Ira plots the points $(1, 3)$, $(4, 3)$, $(4, 0)$, and $(1, 0)$ on a grid. Then he connects the points to form a rectangle. What is the area of the rectangle?

A. 3 square units

B. 6 square units

C. 9 square units

D. 12 square units

ITEM 272

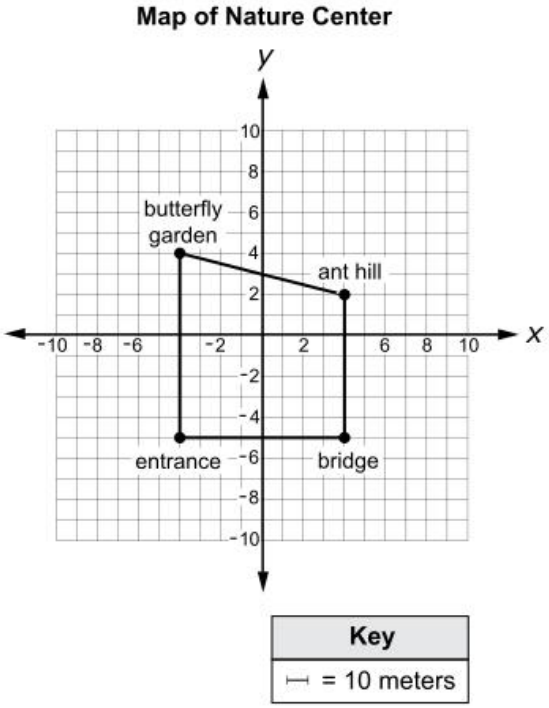
This grid shows the map of a trail that is being built at a nature center. What is the length of the trail between the bridge and the ant hill?

A. 7 meters

B. 10 meters

C. 70 meters

D. 80 meters



Geometry
6.G.A.04
Items 273 - 276

ITEM 273

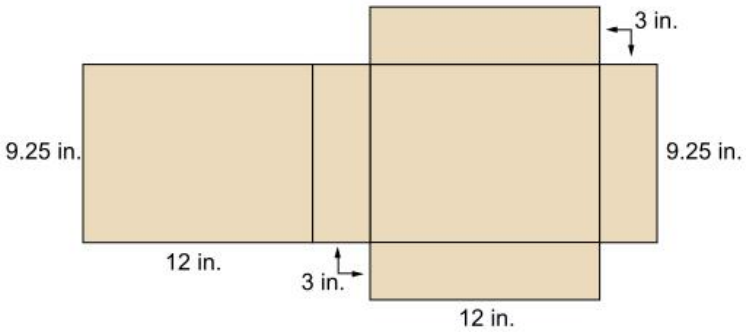
The figure below is the net for a rectangular prism. What is the surface area of the prism?

A. 285.75 inches^2

B. 333.00 inches^2

C. 349.50 inches^2

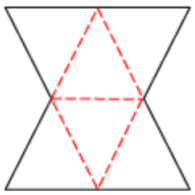
D. 366.00 inches^2

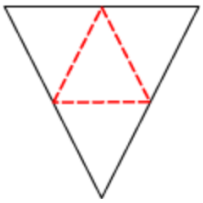


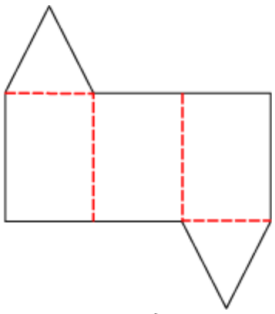
ITEM 274

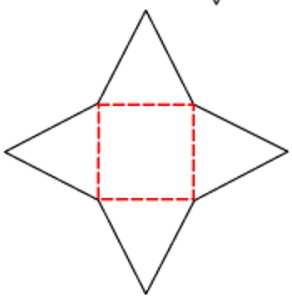
Veronica folded a piece of paper to make a square pyramid.

Which piece of paper did she use?

A. 

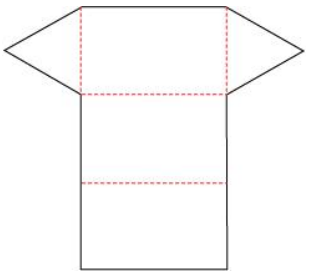
B. 

C. 

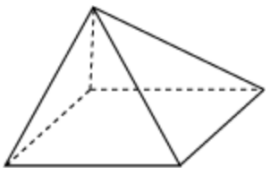
D. 

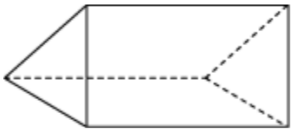
ITEM 275

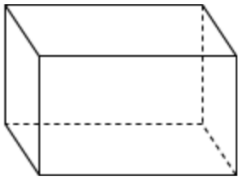
Matt folded this net along the dotted lines and then secured the edges with tape.

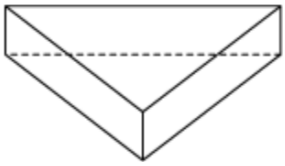


Which polyhedron looks like the net that Matt folded?

A. 

B. 

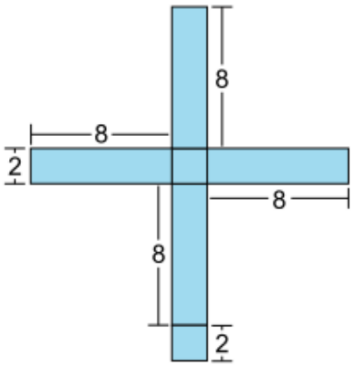
C. 

D. 

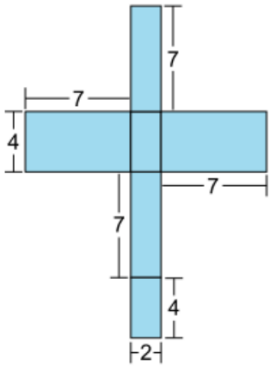
ITEM 276

Which net represent a rectangular prism with a surface area of 78 square units?

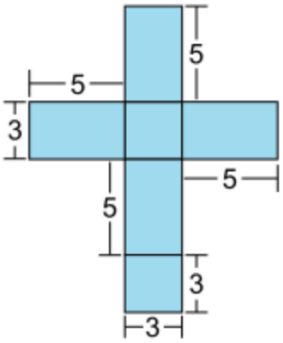
A.



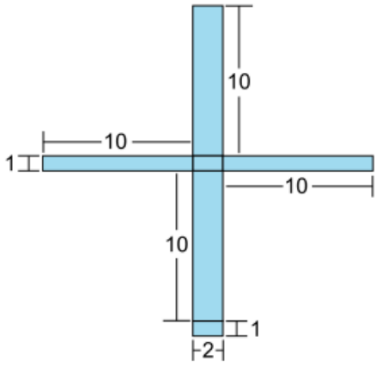
C.



B.



D.



Statistics and Probability
6.SP.A.01
Items 277 – 280

ITEM 277

Which of the following questions is **not** statistical?

A. What grades did the students in the class earn on the unit assessment?

B. What grades did students in the state earn on the 6th grade LEAP last year?

C. What grade did All American Middle School earn on the school report card two years ago?

D. What grades did middle school students earn on their last reporting period at All American Middle School?

ITEM 278

Select **three** questions that are statistical questions.

A. How many cars did each salesman sell this week?

B. How many days are in 6 weeks?

C. What percent of 6^{th} grade students own at least one pet?

D. What are the ages of children enrolled at Koala Kare Day Care?

E. What are the wait times for people visiting the Emergency Room before seeing a doctor on Saturday nights?

ITEM 279

Select **two** questions that are statistical questions.

A. How old are your friends?

B. How old is your favorite teacher?

C. How old are your classmates?

D. How old is your favorite relative?

ITEM 280

Sansay is creating a survey to find out information about the middle school students at Nickleman Middle School. Which one of the following choices is a statistical question that Sansay can include in her survey?

A. What is the girl to boy ratio at Nickleman Middle School?

B. What is the grade point average of each student at Nickleman Middle School?

C. What percentage of boys at Nickleman Middle School play for the football team?

D. What would be the total cost of buying new uniforms for the girls volleyball team?

Statistics and Probability
6.SP.A.02
Items 281 – 283

ITEM 281

Dustin surveyed his classmates about the amount of time spent on homework last weekend. The table shows the results of Dustin's survey.

Amount of Time Spent on Homework	
Number of Minutes	**Frequency**
29 or less	9
30 – 59	13
60 – 89	7
90 or more	4

Which statement about the number of minutes Dustin's classmates spent on homework must be **true**?

A. Everyone surveyed spent at least 1 minute on homework last weekend.

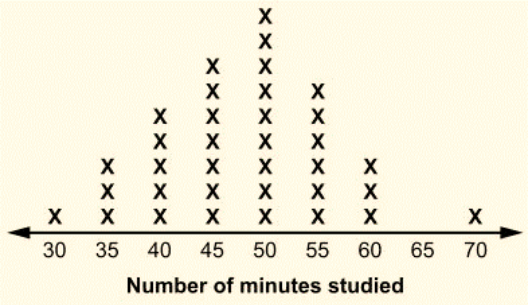
B. At least 1 student spent exactly 59 minutes on homework last weekend.

C. More than half of Dustin's classmates spent less than 1 hour on homework last weekend.

D. More students spent 90 minutes or more on homework last weekend than spent 29 minutes or less.

ITEM 282

The line plot shows the number of minutes that 6th grade students studied for a math test. Which statement about the line plot is **true**?



A. The distribution of data is centered at approximately 48.

B. The distribution of data is skewed right.

C. The mode of this data distribution is 70.

D. The data distribution has a cluster around values 60 – 70.

ITEM 283

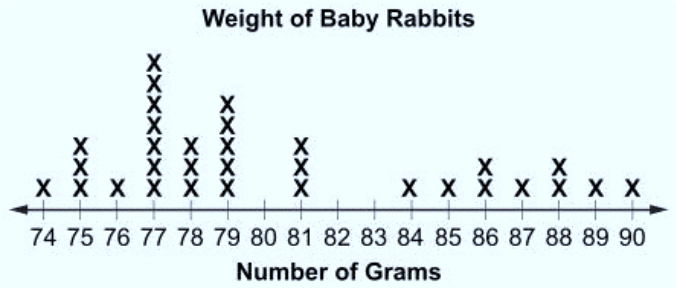
The line plot shows the weight of baby rabbits at a petting zoo.
Which statement describing the data in this line plot is **true**?

A. The data is centered at 82.

B. The data is skewed to the left.

C. The data is skewed to the right.

D. The data is centered at 77.



Statistics and Probability
6.SP.B.03
Item 284

ITEM 284

The Puffins soccer team has 13 players. Statistics showed that at the end season that 4 represented both their median number of goals scored and the range of the numbers of goals scored. Based on the given information, which statement is **true**?

A. The greatest number of goals scored is less than 7.

B. If the greatest number of goals scored is 6, then the least number of goals scored is 4.

C. At least one player scored 4 goals.

D. The mean number of points scored is greater than 4.

Statistics and Probability
6.SP.B.04
Items 285 – 289

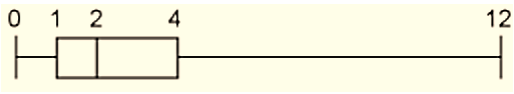
ITEM 285

Sol asked each family on his block about the number of pets they own. This list gives the results.

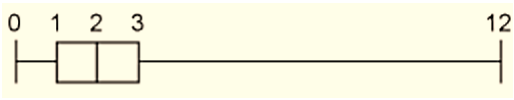
$$\mathbf{1},\ \mathbf{3},\ \mathbf{2},\ \mathbf{0},\ \mathbf{4},\ \mathbf{1},\ \mathbf{12},\ \mathbf{0},\ \mathbf{7},\ \mathbf{2}$$

Which box-and-whisker plot correctly displays this data?

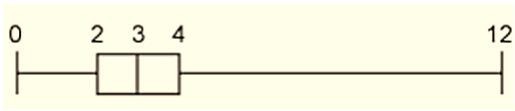
A.



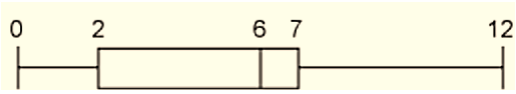
B.



C.



D.



ITEM 286

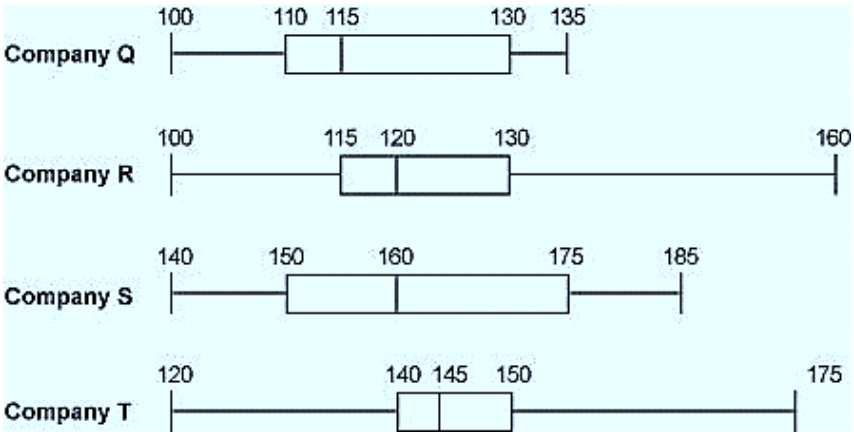
Mr. Chang is comparing the monthly costs of health insurance plans offered by four different companies. The box-and-whisker plots show the cost data for each company. What is the range value for the company that has the greatest range of costs?

A. 55

B. 60

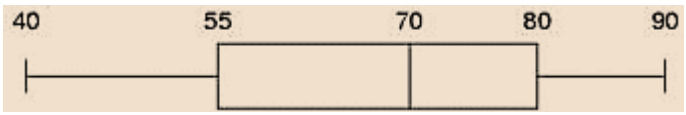
C. 135

D. 185



ITEM 287

This box-and-whisker plot represents the test scores for 29 students. How many students scored 70 points or higher?



A. 7

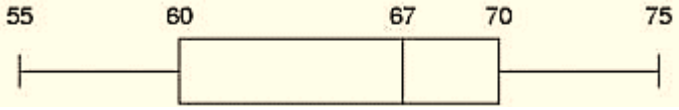
B. 15

C. 21

D. 29

ITEM 288

In order to qualify for the high school swim team, students must be able to hold their breath for a certain number of seconds. The box-and-whisker plot represents the number of seconds that some students hold their breath.



The students at or above the upper quartile can qualify for the swim team. What is the least number of seconds that students must hold their breath in order to qualify for the swim team?

A. 60 seconds

B. 67 seconds

C. 70 seconds

D. 75 seconds

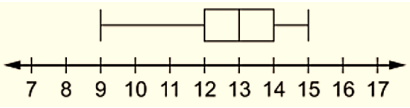
ITEM 289

The data shows the height, in centimeters, of each seedling that Vincent planted.

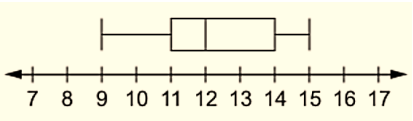
$$9,\ 12,\ 12,\ 11,\ 13,\ 14,\ 14,\ 11,\ 15$$

Which box plot correctly displays this data?

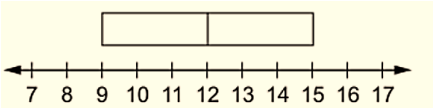
A.



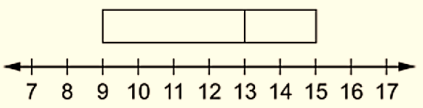
B.



C.



D.



Statistics and Probability
6.SP.B.05b
Item 290

ITEM 290

Mitch wants to determine how many motorists pass his business between the hours of 5:00 pm and 6:00 pm. What is the best way for Mitch to measure this situation, and what unit of measurement should he use?

A. Mitch can calculate the amount of time it takes each vehicle to pass his house between 5:00 pm and 6:00 pm. He can use "minutes" as the unit of measurement.

B. Mitch can contact the Department of Motor Vehicles to identify the number of vehicles on the road between 5:00 pm and 6:00 pm. He can use "cars" as the unit of measurement.

C. Mitch can issue a survey to the town and ask how many people pass his business during the hour between 5:00 pm and 6:00 pm. He can use "people" as the unit of measurement.

D. Mitch can count the number of vehicles that pass his business between 5:00 pm and 6:00 pm. He can use "vehicles" as the unit of measurement.

Statistics and Probability
6.SP.B.05c
Items 291 - 300

ITEM 291

The semester grades for a 6th grade class are organized in the chart.

97	95	90	67	89	90	87	85	82	76	75
74	62	60	56	82	94	82	61	83	92	81

What is the difference between the mean semester grade for the class and the highest semester grade in the class?

A. 17

B. 24

C. 41

D. 80

ITEM 292

Emma wants to find the average height of the girls on the basketball team. She measured each girl and found the heights, in inches, to be the following:

65 62 61 60 60 65 56 65 62 74

What is the mean height of the girls on the basketball team?

A. 61 inches

B. 62 inches

C. 63 inches

D. 65 inches

ITEM 293

Mr. Terry records the number of miles driven daily to work by seven friends. He listed the numbers below:

23 12 4 4 11 13 24

What is the mean number of miles his friends drive to work each day?

A. 4 miles

B. 12 miles

C. 13 miles

D. 20 miles

ITEM 294

Johnny's glass art was showcased last night at the Impressions Art Gallery. Listed below are the ages, in order, of the 20 people who came to the art gallery last night.

17	18	18	19	20	21	22	22	22	28
28	31	33	34	35	44	45	50	52	62

What is the **median** of the ages?

A. 22 years old

B. 28 years old

C. 34 years old

D. 45 years old

ITEM 295

Sally has three plates. Each plate has a different number of cookies.

Sally wants to rearrange the cookies so that each plate has the same number of cookies.
What is the mean number of cookies?

A. 1

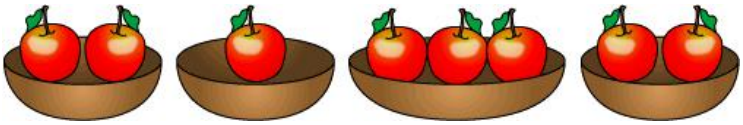
B. 2

C. 3

D. 4

ITEM 296

Tina put some apples in four bowls.



She wants to distribute the apples evenly among the bowls. What is the mean number of apples per bowl?

A. 1

B. 2

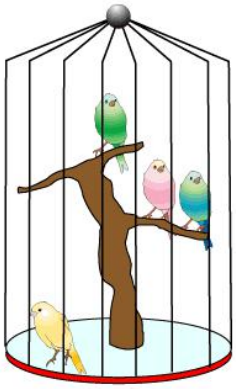
C. 3

D. 4

ITEM 297

Tim has birds in two cages. Which method will help Tim find the mean number of birds in the cages?

Cage A



Cage B

A. Move half the birds from cage A to cage B, then count the birds in cage A.

B. Move half the birds from cage B to cage A, then count the birds in cage A.

C. Move two birds from cage A and put them in cage B, then add the number of birds in both cages.

D. Move one bird at a time from cage A to cage B, then when each cage has the same number, count the birds in cage B.

ITEM 298

Emil saw these two nests.

What is the mean number of eggs in the nests Emil saw?

A. 3

B. 4

C. 5

D. 6

ITEM 299

This data list shows the number of e-mails Karen received each day last week.

8	**20**	**12**	**15**	**25**	**13**	**12**

What is the mean of this data?

A. 13

B. 15

C. 16

D. 18

ITEM 300

Julia asks a random sample of students in her school how many basketball games they attend each year. She records the results in the chart.

5	1	0	3	8	8	2	10
8	2	1	8	4	0	2	4

Estimate the mean number of basketball games attended by students in Julia's school.

A. 4.7

B. 4.4

C. 4.1

D. 3.9

Statistics and Probability
6.SP.B.05d
Items 301 - 307

ITEM 301

Dana researched the amount of protein in a variety of dairy products. She recorded the data in this table.

Which measure best describes the typical amount of protein in these dairy products?

A. mean

B. mode

C. range

D. median

Protein Values in 1 Serving of Select Dairy Products	
Dairy Product	**Number of Grams of Protein**
Cheddar cheese	5
Cottage cheese	26
Cream cheese	2
Swiss cheese	7
Whole milk	8
Ice cream	5
Yogurt	10

ITEM 302

This table shows the number of animals that are on the endangered species list.

Animal Group	Mammals	Birds	Reptiles	Fish
Number of Species Threatened or Endangered	61	74	14	69

Which is the best explanation for why the mean should **not** be used to represent this data set?

A. There is an extreme value in the data.

B. The range of the data is too large.

C. There are an even number of values.

D. The data do not have any recurring values.

ITEM 303

This list shows the number of people who subscribed to a newsletter each day for the first 10 days.

2 17 47 27 47 47 47 87 55 112

How does the mean of this data set change if the extreme values of 87 and 112 are removed before calculation?

A. The mean will be higher.

B. The mean will be lower.

C. The mean will not change.

D. The mean cannot be calculated.

ITEM 304

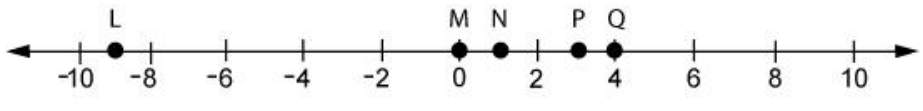
Which measure of central tendency most appropriately summarizes the data on this number line?

A. Mode

B. Mean

C. Range

D. Median



ITEM 305

The data below show the number of pages in the last 6 books Martin read.

213	219	264	276	293	713

Which measure best represents the length of a typical book Martin reads?

A. Mean

B. Median

C. Mode

D. Range

ITEM 306

Ted's bowling scores from his last ten games bowled are shown below.

34	147	184	159	160
139	160	190	155	158

Which measure of center will give the most accurate measure of Ted's typical bowling score?

A. Mean

B. Median

C. Mode

D. Range

ITEM 307

The numbers of 9th graders in each homeroom class at North Lake High School are listed below.

23	17	7	20	24
22	25	26	18	28

Which measure best describes the typical number of 9th graders in each homeroom?

A. Mean

B. Mode

C. Range

D. Median