Lesson 10 Exercise 2

Determine whether the following number sentences are TRUE or FALSE.

a. $4 + 8 = 10 + 5$

b. $\frac{1}{2} + \frac{5}{8} = 1.2 - 0.075$

c. $(71 \cdot 603) \cdot 5876 = 603 \cdot (5876 \cdot 71)$

d. $13 \times 175 = 13 \times 90 + 85 \, x \, 13$

e. $(7 + 9)^2 = 7^2 + 9^2$

f. $\pi = 3.141$

g. $\sqrt{(4+9)} = \sqrt{4} + \sqrt{9}$

h. $\frac{1}{2} + \frac{1}{3} = \frac{2}{5}$

i. $\frac{1}{2} + \frac{1}{3} = \frac{2}{6}$

j. $\frac{1}{2} + \frac{1}{3} = \frac{5}{6}$

k. $3^2 + 4^2 = 7^2$

l. $3^2 \times 4^2 = 12^2$

m. $3^2 \times 4^3 = 12^6$

n. $3^2 \times 3^3 = 3^5$

Lesson 10 Exercise 5

When algebraic equations contain a symbol whose value has not yet been determined, we use analysis to determine whether:

1. **The equation is true for all the possible values of the variable(s), or**
2. **The equation is true for a certain set of the possible value(s) of the variable(s), or**
3. **The equation is never true for any of the possible values of the variable(s).**

For each of the three cases, write an algebraic equation that would be correctly described by that case. Use only the variable, x, where x represents a real number.

Lesson 10 Exercise 6

Name a value of the variable that would make each equation a true number sentence.

Here are several examples of how we can name the value of the variable:

Let w = -2, then $w^2 = 4$ is true.

Or:

$w^2 = 4$ is true when w = -2

Or:

$w^2 = 4$ is true if w = -2

Or:

$w^2 = 4$ is true for w = -2 and w = 2.

There might be more than one option for what numerical values to write. (And feel free to write more than one possibility.)

Warning: Some of these are tricky. Keep your wits about you!

a. **Let _____, then $7 + x = 12$ is true.**
b. **Let _____, then $3r + 0.5 = \frac{37}{2}$ is true.**
c. **$m^3 = -125$ is true for _____.**
d. **A number x and its square, x^2 have the same value when _____.**
e. **The average of 7 and n is -8 if _____.**
f. **Let _____, then $2a = a + a$ is true.**
g. **$q + 67 = q + 68$ is true for _____.**

Lesson 11 Exercise 6

Create an expression for the right side of each equation such that the solution set for the equation will be all real numbers. (There is more than one possibility for each expression. Feel free to write several answers for each one.)

a. $2x - 5 =$ _____

b. $x^2 + x =$ _____

c. $4 \cdot x \cdot y \cdot z =$ _____

d. $(x + 2)^2 =$ _____

Lesson 11 Exercise 7

a. **Solve for B: $B^2 \geq 9$. Describe the solution set using a number line.**

b. **What is the solution set to the statement: "Sticks of lengths 2 yards, 2 yards and L yards make an isosceles triangle"? Describe the solution set in words and on a number line.**