

Module 4 Lesson 13

Objective: Find areas by decomposing into rectangles or completing composite figures to form rectangles.

Fluency Practice

Group Counting:

Let's Count by Threes to 30!

Let's Count by Sixes to 60!

Let's Count by Eights to 80!

Let Count by Nines to 90!

Fluency Practice

Find the Common Products:

Let's list multiples of 4!

4
8
12
16
20
24
28
32
36

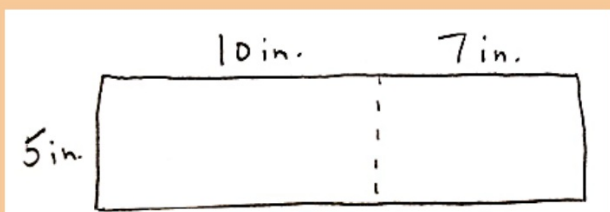
Let's list multiples of 8!

8
16
24
32
40
48
56
64
72
80

Let's draw a line to match the numbers that appear in both columns.

Application Problem

Anil finds the area of a 5 inch by 17 inch rectangle by breaking it into 2 smaller rectangles. Show one way that he could have solved the problem. What is the area of the rectangle?



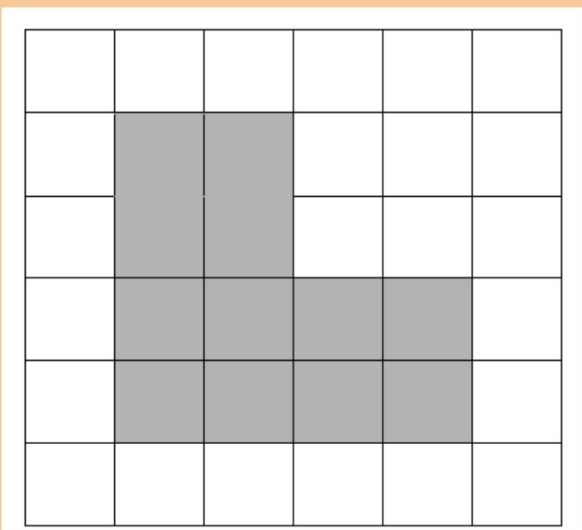
$$5 \times 17 = (5 \times 10) + (5 \times 7)$$
$$5 \times 17 = 50 + 35 = 85$$

The area of the rectangle is 85 sq. in.

Concept Development

Problem 1: Add using the break apart strategy to find area of a composite shape.

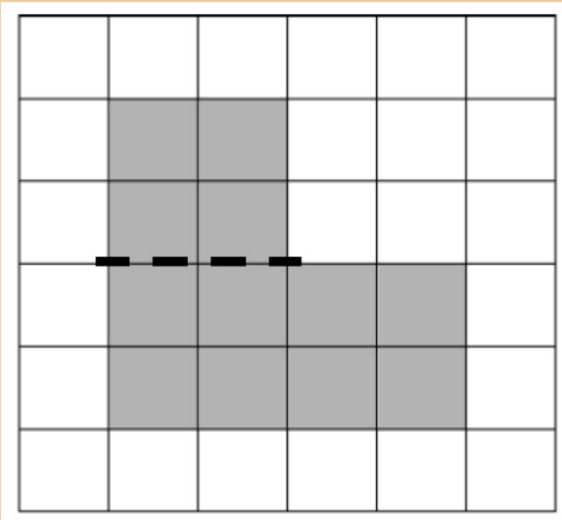
Draw and shade the shape below on your grid template.



**Talk to your partner:
Can we find the area of the shaded figure by multiplying side lengths?
How do you know?**

Concept Development

Problem 1: Add using the break apart strategy to find area of a composite shape.

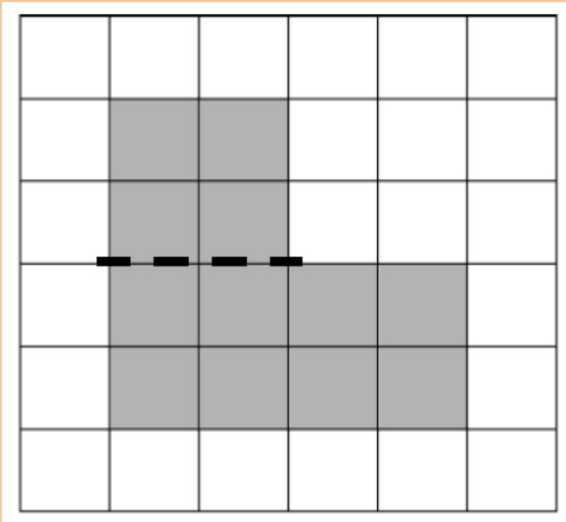


In the Application Problem, we used the break apart and distribute strategy to find the area of a larger rectangle by breaking it into smaller rectangles.

Turn and talk to your partner: How might we use a strategy like that to find the area of the shaded figure?

Concept Development

Problem 1: Add using the break apart strategy to find area of a composite shape.



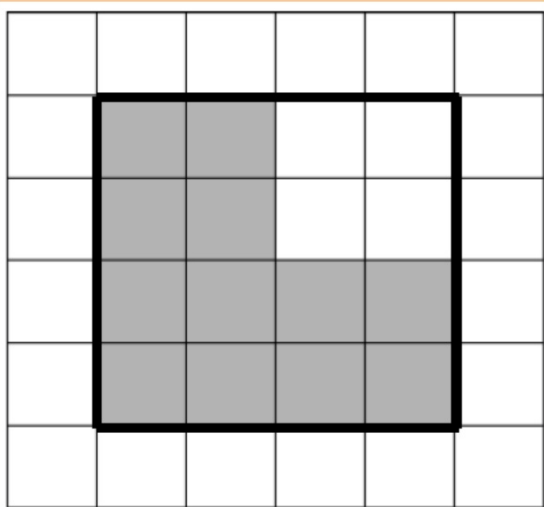
What equation tells you the area of the rectangle on top?

What equation tells you the area of the rectangle on bottom?

How do we use those measurements to find the area of the shaded figure?

Concept Development

Problem 1: Add using the break apart strategy to find area of a composite shape.

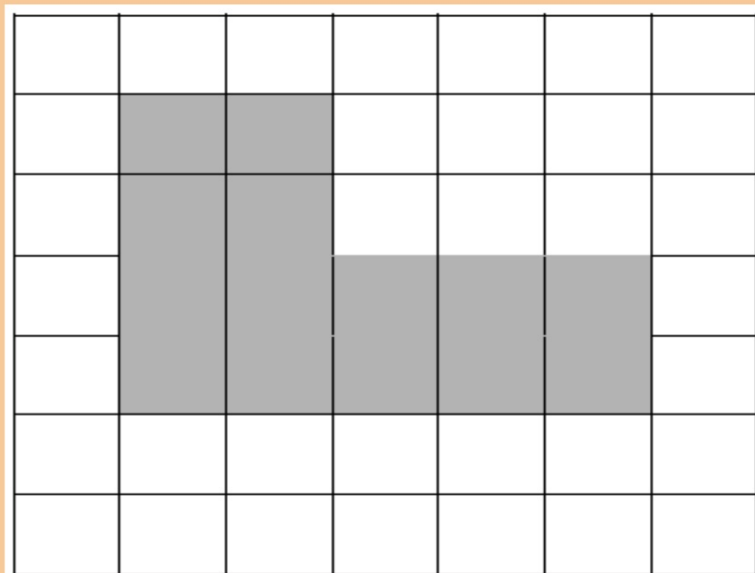


We can also find the area of the shaded figure by thinking about a 4×4 square with missing units.

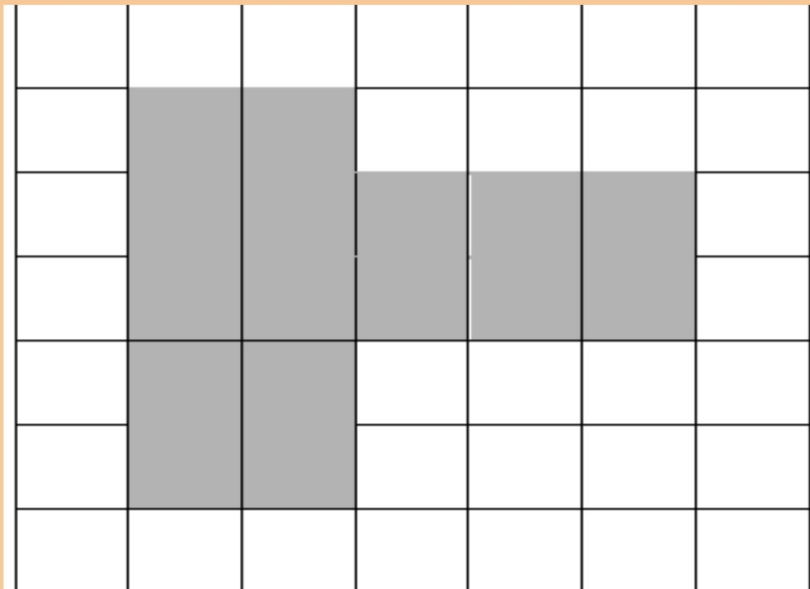
Turn and talk to your partner: How can we find the shaded area using our square?

There are different strategies of finding the area of a figure. It just depends on how you choose to look at it.

Practice Problem

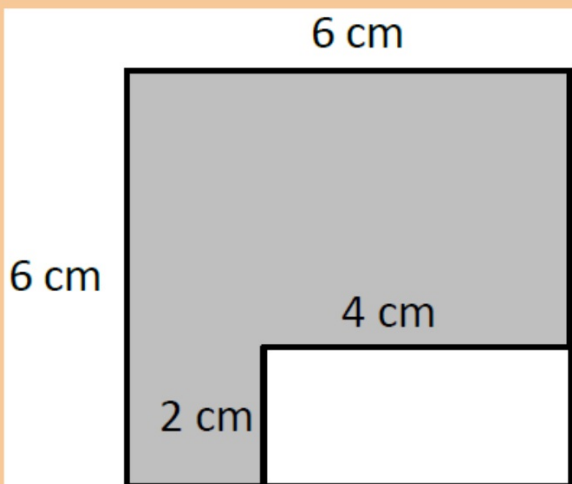


Practice Problem



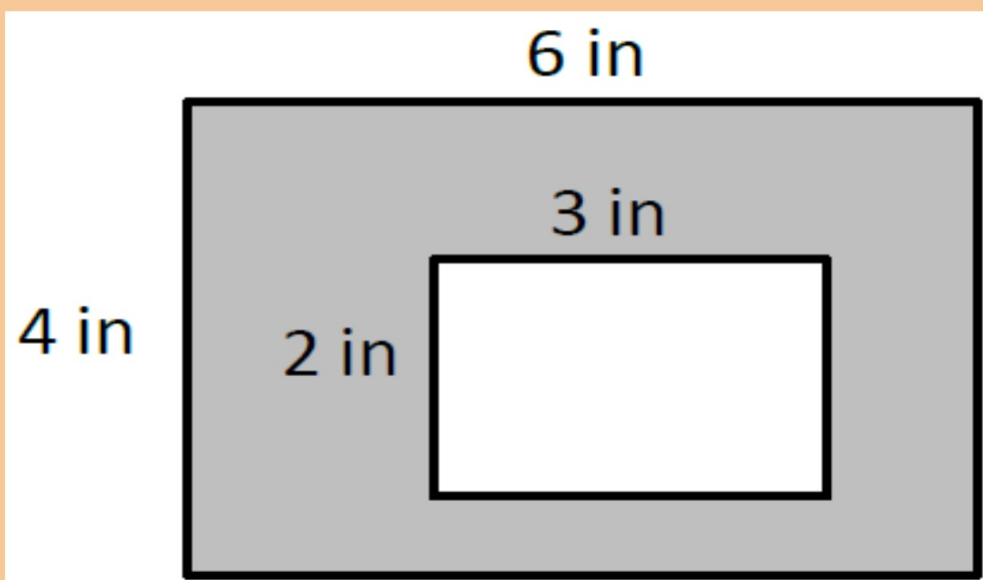
Concept Development

Problem 2: Subtract to find the area of a composite shape



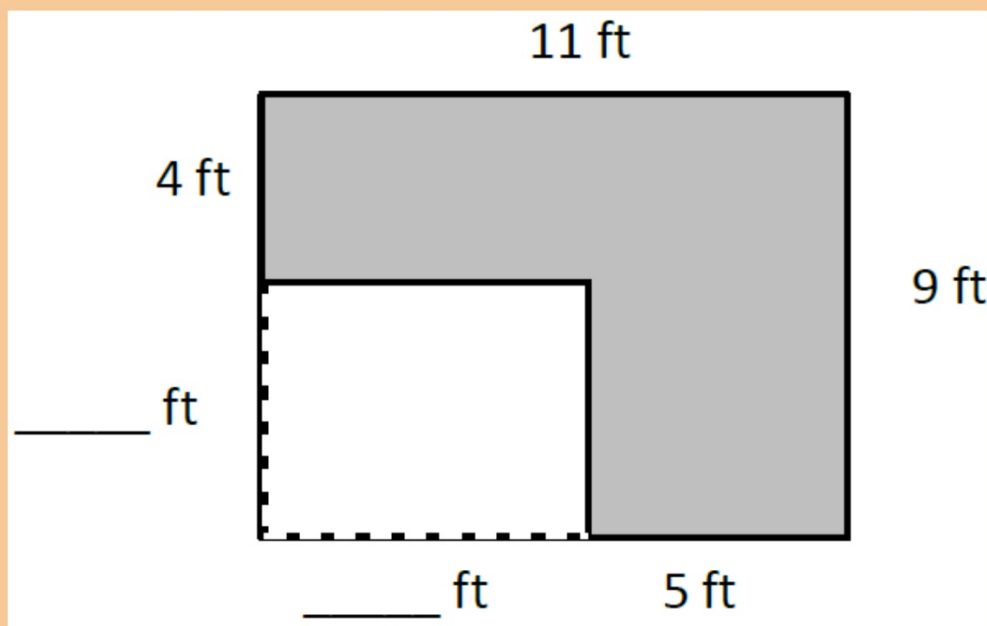
This figure shows a small rectangle cut out of a larger, shaded rectangle. How can we find the area of the shaded figure?

Practice Problem



Concept Development

Problem 3: Subtract to find the area of a composite shape with missing side lengths



Problem Set

(10 minutes)

Problem Set (Answers)

Figure 1: Area of A + Area of B: $\underline{18} + \underline{9} = \underline{27}$ sq units

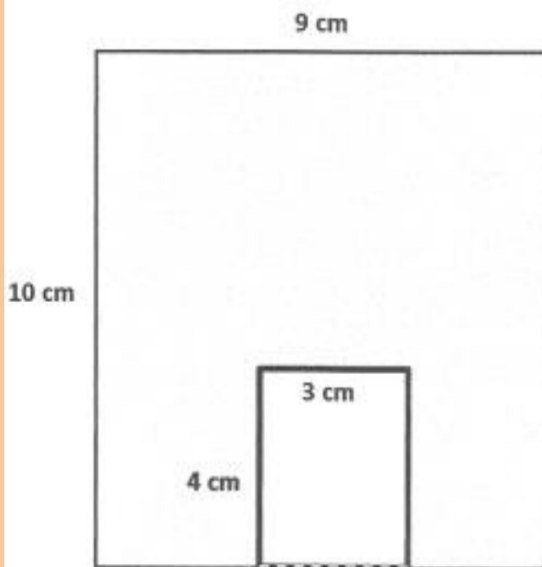
Figure 2: Area of C + Area of D: $\underline{18} + \underline{15} = \underline{33}$ sq units

Figure 3: Area of E + Area of F: $\underline{9} + \underline{21} = \underline{30}$ sq units

Figure 4: Area of G + Area of H: $\underline{49} + \underline{6} = \underline{55}$ sq units

Problem Set (Answers)

2. The figure shows a small rectangle cut out of a big rectangle. Find the area of the shaded region.

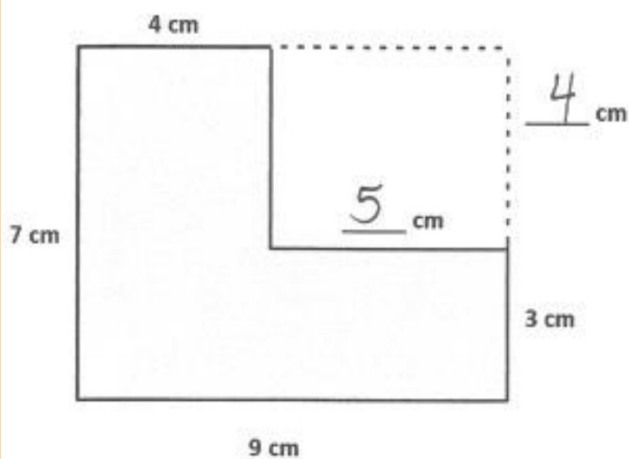


Big rectangle area: $10 \times 9 = 90$ sq cm
Small rectangle area: $4 \times 3 = 12$ sq cm

Area of the shaded region: $90 - 12 = 78$ sq cm

Problem Set (Answers)

3. The figure shows a small rectangle cut out of a big rectangle.



a. Label the missing measurements.

b. Area of the big rectangle: $7 \times 9 = 63$ sq cm

c. Area of the small rectangle: $4 \times 5 = 20$ sq cm

d. Find the area of the shaded region.
 $63 - 20 = 43$
sq cm

Student Debrief

- How did you break apart the rectangles in Figure 4?. Did anyone break apart the rectangles in a different way?
- In Problem 2, a 4-cm by 3-cm rectangle was cut out of a bigger rectangle. What other measurements could have been cut out to keep the same area for the shaded region?
- How did you find the unknown measurements in Problem 3?
- How were today's strategies examples of using what we know to solve new types of problems?

Exit Ticket

(3 minutes)

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