# G3-M7-Lesson 29

Josh puts two rectangles together to make the L-shaped figure below. He measures some of the side lengths and records them as shown.

I know that opposite sides of rectangles have equal lengths. So I broke up the shape into three rectangles to help me find the unknown side lengths. I subtracted the known parts from the whole lengths to find both unknowns.

I found this unknown side length by subtracting:

$14 \text{ cm} - 7 \text{ cm} = 7 \text{ cm}.$

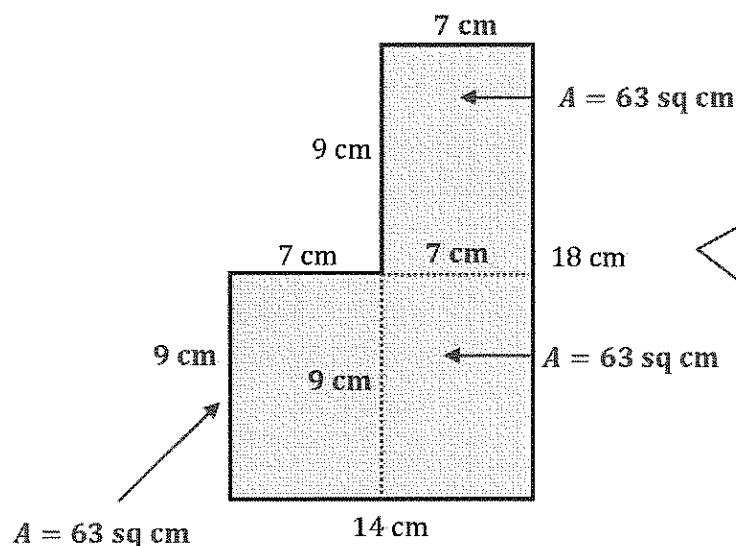I found this unknown side length by subtracting. $18 \text{ cm} - 9 \text{ cm} = 9 \text{ cm}.$

7 cm

9 cm

7 cm   7 cm

18 cm

9 cm

9 cm
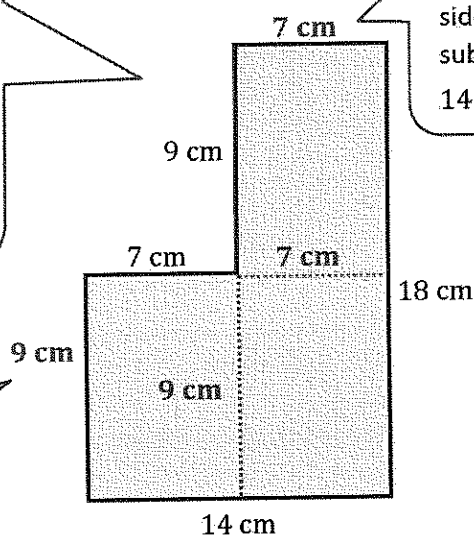
14 cm

a. Find the perimeter of Josh's shape.

$P = (2 \times 18 \text{ cm}) + (2 \times 14 \text{ cm})$

$= 36 \text{ cm} + 28 \text{ cm}$

$= 64 \text{ cm}$

The perimeter of Josh's shape is 64 cm.

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b. Find the area of Josh's shape.

7 cm

$A = 63$ sq cm

9 cm

7 cm   7 cm   18 cm

9 cm

9 cm $A = 63$ sq cm

$A = 63$ sq cm   14 cm

> There are many ways to break up this shape. I chose to break it up into 3 rectangles and find the areas of each. I found that each of the three rectangles has an area of 63 sq cm. To find the total area of the shape, I can just add 63 three times or write a multiplication sentence.

$A = 3 \times 63$ sq cm

$\quad = (3 \times 60$ sq cm$) + (3 \times 3$ sq cm$)$

$\quad = 180$ sq cm $+ 9$ sq cm

$\quad = 189$ sq cm

> I can use unit form language to help me solve 3×60. It's the same as 3×6 tens. That's equal to 18 tens, which has a value of 180.

The area of Josh's shape is 189 sq cm.

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Lesson 29:   Solve a variety of word problems involving area and perimeter using all
             four operations.

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