Using Area to Find a Missing Dimension

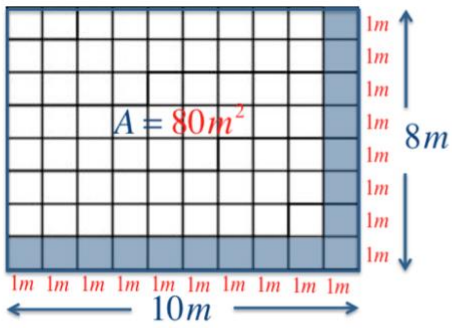
The area of a rectangle is 80m^2. The length of the rectangle is 10m.
What is the width of the rectangle?

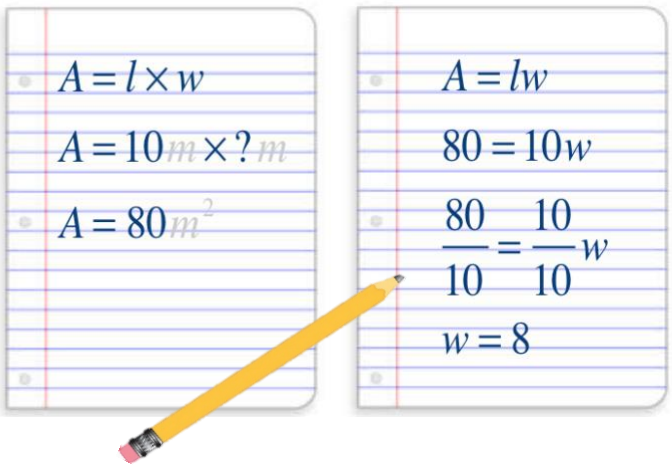
- How would I use a diagram to explain and illustrate this problem?

- How could I use my understanding of area as a solution to this problem?

- The area formula for a rectangle involves multiplication. How would I explain using multiplication to determine the missing side?

I'll compare my thinking from the previous solutions to a different approach.





The area of a rectangle is $80m^2$
The length of the rectangle is 10m.
What is the width of the rectangle?

- How would I explain my thinking as I work through this solution?

$$A = lw$$
$$80 = 10w$$
$$\frac{80}{10} = \frac{10}{10}w$$
$$w = 8$$

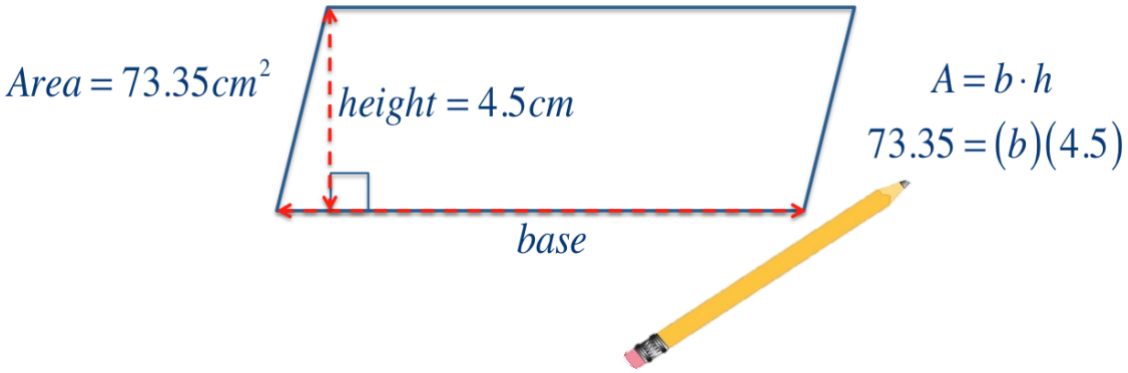
The area of a parallelogram is $73.35cm^2$. The height of the parallelogram is 4.5cm. What is the base of the parallelogram?

- How would I draw and label the parallelogram described in this problem?

- How would I write and explain the formula I use for calculating the area of a parallelogram?

- How would I demonstrate and explain substituting the information from my diagram into the area formula?

- How would I read/describe my solution at this step?



- How will I explain and demonstrate the calculation required to isolate the variable *b* and determine the base of the parallelogram?

A triangle has an area measuring 15m^2 and a base measuring 6m. What is the height of the triangle?

I'll compare two solutions for calculating the height.

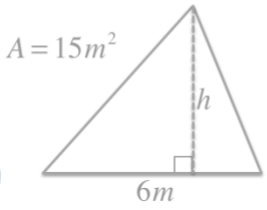
$$A = \frac{bh}{2}$$

$$15 = \frac{6 \times h}{2}$$

$$15 = \frac{6 \times 5 = h}{2}$$

$$15 = \frac{30}{2}$$

$$15 = 15$$



$$A = \frac{1}{2}bh$$

$$15 = \frac{1}{2} \times 6 \times h$$

$$15 = 3h$$

$$5 = h$$

- How would I describe the solutions as being similar?

This solution could be described as a guess n' check or trial and error approach.

- How might I explain the thinking that could occur when using this approach to solve for the variable?

$$A = \frac{bh}{2}$$

$$15 = \frac{6 \times h}{2}$$

$$15 = \frac{6 \times 5 = h}{2}$$

$$15 = \frac{30}{2}$$

$$15 = 15$$

This solution involves isolating the variable by performing the inverse math operations.

- How would I walk and talk someone through this solution approach?

$$A = \frac{1}{2}bh$$

$$15 = \frac{1}{2} \times 6 \times h$$

$$15 = 3h$$

$$5 = h$$

Using Area to Find a Missing Dimension - Skills Checklist

☑I can explain and demonstrate how I use the following formulas to calculate area

$A = l \times w$ $A = b \times h$ $A = \frac{1}{2}(b \times h)$

☑I can explain how I use the following formulas to find a missing dimension

$A = l \times w$ $A = b \times h$ $A = \frac{1}{2}(b \times h)$

☑I can explain and demonstrate how I isolate and solve for a variable in the following formulas using inverse operations

$A = l \times w$ $A = b \times h$ $A = \frac{1}{2}(b \times h)$