

Lesson 4.2

January 7, 2014

**Activity**  
**4.2** **Warm Up**  
For use before Activity 4.2

**Simplify.**

1.  $\frac{1}{2}(9)(4)$

2.  $\frac{1}{2}(28)(1)$

3.  $\frac{1}{2}(22)(2)$

4.  $\frac{1}{2}(2)(23)$

5.  $\frac{1}{2}(6)(3)$

6.  $\frac{1}{2}(6)(6)$

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# Essential Question

How can you derive the formula for the area of a triangle?

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# LessonTarget

To be able to:

- derive and use the formula to find the areas of several triangles.

## Self-Evaluation Rubric

Score	Description
4	I can teach other students how to derive and use the formula to find the areas of several triangles.
3	I can derive and use the formula to find the areas of several triangles.
2	I recognize how to derive and use the formula to find the areas of several triangles.
1	I do not know how to derive and use the formula to find the areas of several triangles.

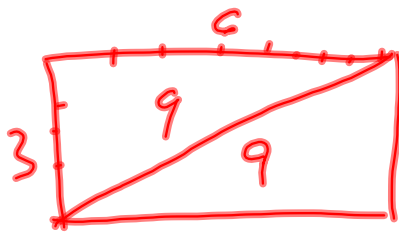
**Lesson Target:** To be able to derive and use the formula to find the areas of several triangles.

## Activity 1&2

With a partner(s) work on  
Activity 1 & 2 on page 81 in the  
so cover Big Ideas and Pracce  
Journal.

## Activity 3

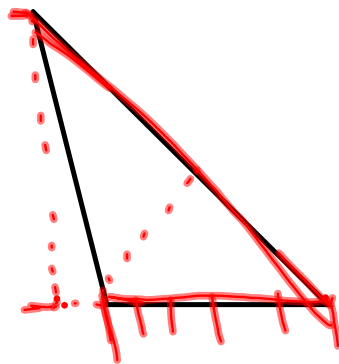
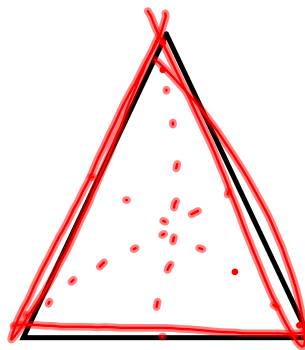
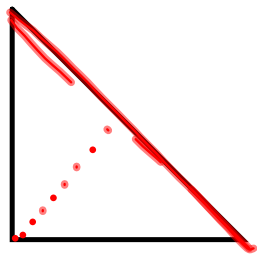
With a partner(s) work on  
Activity 3 on page 82 & 83 in  
the so cover Big Ideas and  
Pracce Journal.



$$\triangle = \frac{1}{2} \square$$

$$\triangle = \frac{1}{2} l w$$

$$A = \frac{1}{2} b h$$



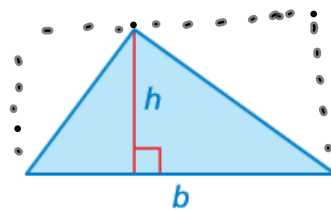
**Lesson Target:** To be able to derive and use the formula to find the areas of several triangles.

## Key Idea

### Area of a Triangle

**Words** The area  $A$  of a triangle is one-half the product of its base  $b$  and its height  $h$ .

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



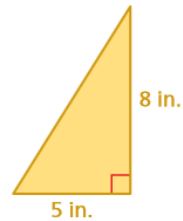


**Lesson Target:** To be able to derive and use the formula to find the areas of several triangles.

## 1 Finding the Area of a Triangle

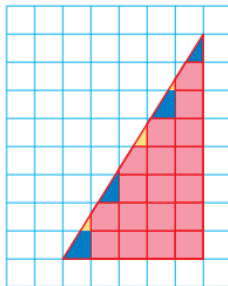
Find the area of the triangle.

$A = \frac{1}{2}bh$	Write formula.
$= \frac{1}{2}(5)(8)$	Substitute 5 for $b$ and 8 for $h$ .
$= \frac{1}{2}(40)$	Multiply 5 and 8.
$= 20$	Multiply $\frac{1}{2}$ and 40.



∴ The area of the triangle is 20 square inches.

**Reasonable?** Draw the triangle on grid paper and count unit squares. Each square in the grid represents 1 square inch.



Squares full or nearly full: 18

Squares about half full: 4

The area is  $18(1) + 4\left(\frac{1}{2}\right) = 20$  square inches.

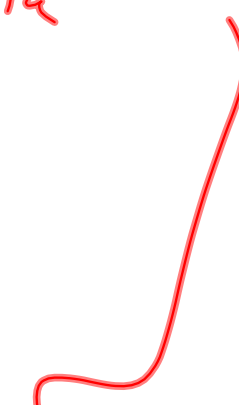
So, the answer is reasonable. ✓

F  
Formula

V  
Values

S  
Simplify

S  
Solve



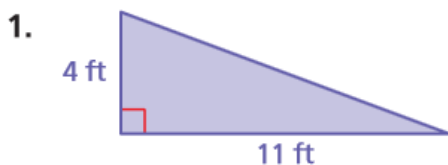


**Lesson Target:** To be able to derive and use the formula to find the areas of several triangles.

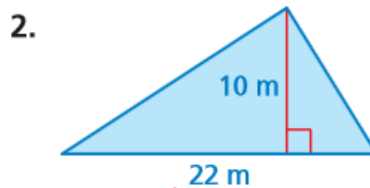
# Try it!

## ● On Your Own

Find the area of the triangle.



$$A = \frac{1}{2}bh$$
$$A = \frac{1}{2}(4)(11)$$
$$A = (2)(11)$$
$$A = 22 \text{ ft}^2$$

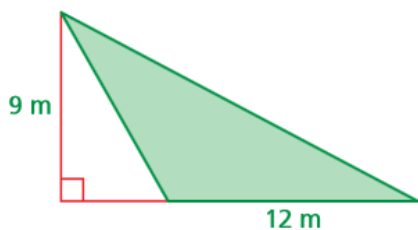


$$A = \frac{1}{2}bh$$
$$A = \frac{1}{2}(10)(22)$$
$$A = 5 \cdot 22$$
$$A = 110 \text{ m}^2$$

**Lesson Target:** To be able to derive and use the formula to find the areas of several triangles.

## 2 Finding the Area of a Triangle

Find the area of the triangle.



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

Write formula.

$$= \frac{1}{2}(12)(9)$$

Substitute 12 for  $b$  and 9 for  $h$ .

$$= 54$$

Multiply.

∴ The area of the triangle is 54 square meters.

**Lesson Target:** To be able to derive and use the formula to find the areas of several triangles.

# Assignment

Do numbers:

3, 6, 8, 10, 13, 15, 17, & 20

on pages 162 & 163 of your (hard cover) Big Ideas Text Book.

**Lesson Target:** To be able to derive and use the formula to find the areas of several triangles.

# Homework

Big Ideas Record and  
Pracce Journal  
(so cover)  
Page 84

