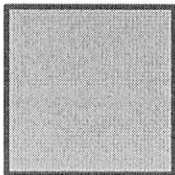

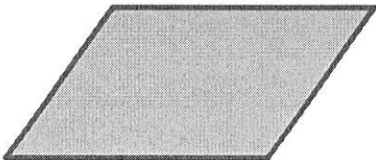
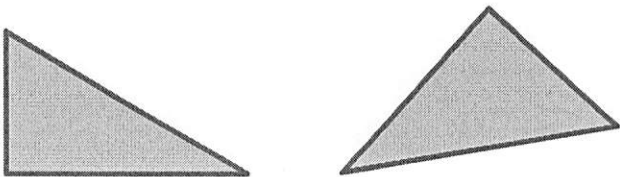
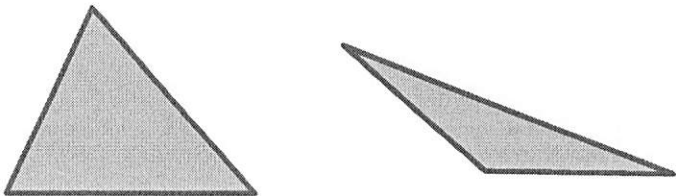
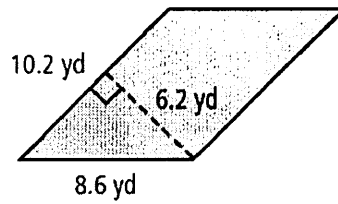


# Lesson 13-1 – 13-4: Area of Rectangles, Squares, Parallelograms and Triangles

Shape	Area Formula
<p>Square:</p> 	
<p>Rectangle:</p> 	
<p>Parallelogram:</p> 	
<p>Right Triangle:</p> 	
<p>Acute and Obtuse Triangles:</p> 	

## Got It?

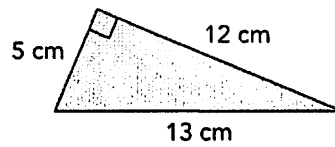
What is the area of the parallelogram?



Formula and List of Values:	Substitution and Solve:	Final Labeled Answer:
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## Example

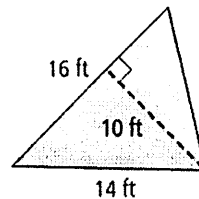
What is the area of the right triangle?



Formula and List of Values:	Substitution and Solve:	Final Labeled Answer:

## Example

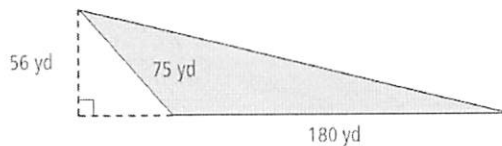
What is the area of the triangle?



Formula and List of Values:	Substitution and Solve:	Final Labeled Answer:

### Got It?

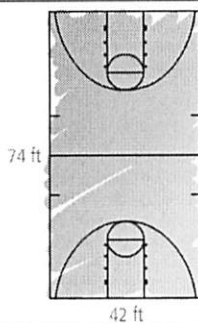
What is the area of the obtuse triangle?



Formula and List of Values:	Substitution and Solve:	Final Labeled Answer:

### Got It?

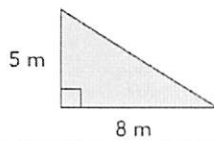
What is the area of the basketball court?



Formula and List of Values:	Substitution and Solve:	Final Labeled Answer:

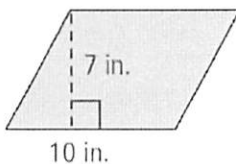
### Example

What is the area of the right triangle shown?



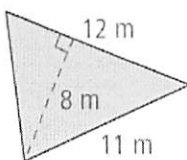
Formula and List of Values:	Substitution and Solve:	Final Labeled Answer:

What is the area of the parallelogram?



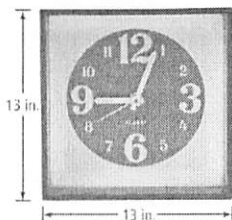
Formula and List of Values:	Substitution and Solve:	Final Labeled Answer:
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What is the area of the triangle?



Formula and List of Values:	Substitution and Solve:	Final Labeled Answer:
-----------------------------	-------------------------	-----------------------

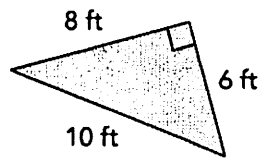
What is the area of the square clock?



Formula and List of Values:	Substitution and Solve:	Final Labeled Answer:
-----------------------------	-------------------------	-----------------------

## Got It?

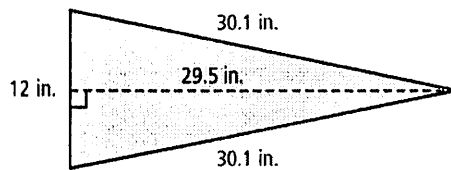
What is the area of the right triangle?



Formula and List of Values:	Substitution and Solve:	Final Labeled Answer:

## Example

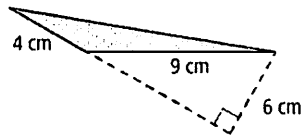
What is the area of the triangle?



Formula and List of Values:	Substitution and Solve:	Final Labeled Answer:

## Got It?

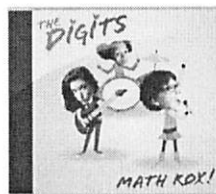
What is the area of the obtuse triangle?



Formula and List of Values:	Substitution and Solve:	Final Labeled Answer:

## Example

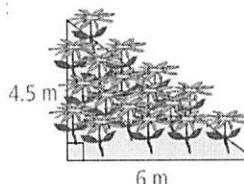
The booklet in a CD case is a square with side length 4.72 in. What is the area of the booklet? Round your answer to the nearest hundredth.



Formula and List of Values:	Substitution and Solve:	Final Labeled Answer:

## Got It?

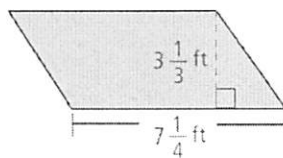
The flower garden has the shape of a right triangle. What is the area of the flower garden?



Formula and List of Values:	Substitution and Solve:	Final Labeled Answer:

## Got It?

What is the area of the parallelogram?

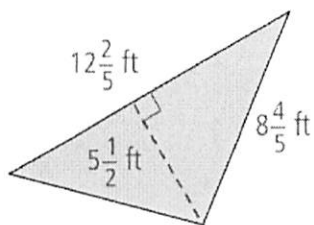


Formula and List of Values:	Substitution and Solve:	Final Labeled Answer:

Challenge:

### Example

What is the area of the triangle?



Formula and List of Values:

Substitution and Solve:

Final Labeled Answer:

### Example

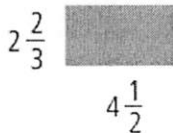
Which rectangles have an area of 12 square units?



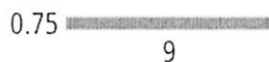
Area = 12 square units

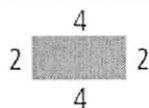
Area  $\neq$  12 square units








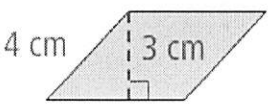
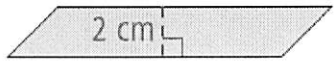
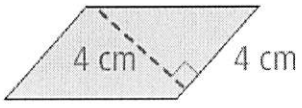
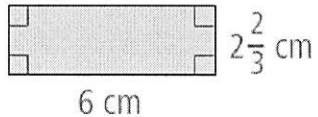
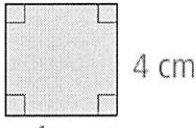
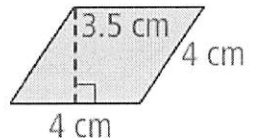






## Example

 Which parallelograms have an area of  $16 \text{ cm}^2$ ?

Area = $16 \text{ cm}^2$	Area $\neq 16 \text{ cm}^2$	
 <input type="text"/>	 <input type="text"/>	 <input type="text"/>
 <input type="text"/>	 <input type="text"/>	 <input type="text"/>

## Example

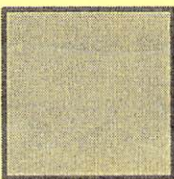

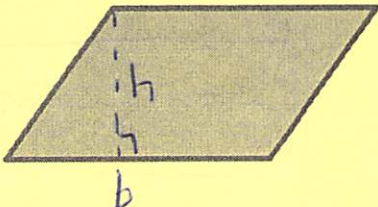
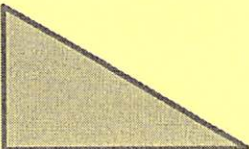
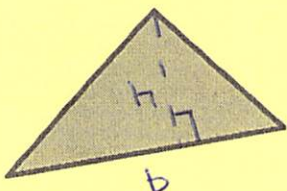
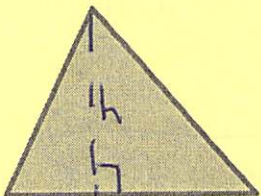
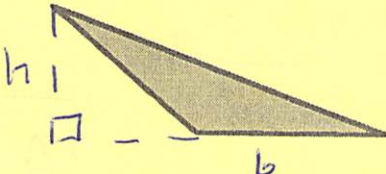
The area of a rectangular carpet is  $54 \text{ ft}^2$ . The carpet is 9 ft long. How wide is the carpet?

## Got It?

A rectangular tabletop has an area of  $28 \text{ ft}^2$ . The tabletop is  $3\frac{1}{2}$  ft wide. How long is the tabletop?

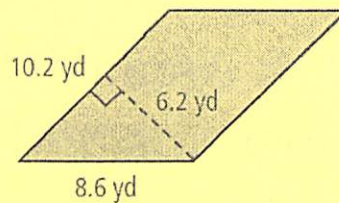


# Lesson 13-1 – 13-4: Area of Rectangles, Squares, Parallelograms and Triangles

Shape	Area Formula
<p>Square:</p>  $A = s^2$	$A = L \times W$ $A = b \cdot h$ $L = \text{length}$ $b = \text{base}$ $W = \text{width}$ $h = \text{height}$
<p>Rectangle:</p> 	$A = b \cdot h$
<p>Parallelogram:</p> 	$A = b \cdot h$
<p>Right Triangle:</p>  	$A = \frac{b \cdot h}{2}$ $A = \frac{1}{2} b \cdot h$
<p>Acute and Obtuse Triangles:</p>  	$A = \frac{b \cdot h}{2}$ $A = \frac{1}{2} b \cdot h$

## Got It?

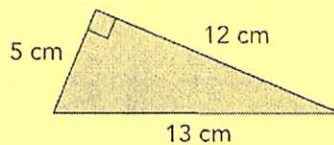
What is the area of the parallelogram?



Formula and List of Values:	Substitution and Solve:	Final Labeled Answer:
$A = b \cdot h$ $A = ?$ $b = 10.2 \text{ yd}$ $h = 6.2 \text{ yd}$	$A = (10.2 \text{ yd})(6.2 \text{ yd})$ $A = 63.24$	$A = 63.24 \text{ yd}^2$

## Example

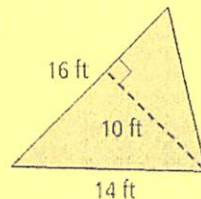
What is the area of the right triangle?



Formula and List of Values:	Substitution and Solve:	Final Labeled Answer:
$A = \frac{b \cdot h}{2}$ $A = ?$ $b = 5 \text{ cm}$ $h = 12 \text{ cm}$	$A = \frac{(5 \text{ cm})(12 \text{ cm})}{2}$ $A = 30$	$A = 30 \text{ cm}^2$

## Example

What is the area of the triangle?

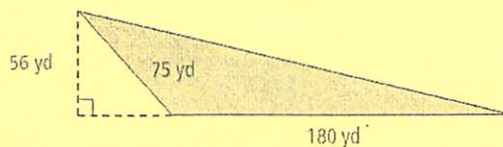


Formula and List of Values:	Substitution and Solve:	Final Labeled Answer:
$A = \frac{b \cdot h}{2}$ $A = ?$ $b = 16 \text{ ft}$ $h = 10 \text{ ft}$	$A = \frac{(16 \text{ ft})(10 \text{ ft})}{2}$ $A = 80$	$A = 80 \text{ ft}^2$



### Got It?

What is the area of the obtuse triangle?



Formula and List of Values:

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

$$A = ?$$

$$b = 180 \text{ yd}$$

$$h = 56 \text{ yd}$$

Substitution and Solve:

$$A = \frac{(180 \text{ yd})(56 \text{ yd})}{2}$$

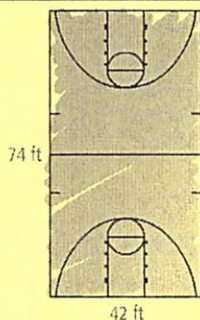
$$A = 5040$$

Final Labeled Answer:

$$A = 5040 \text{ yd}^2$$

### Got It?

What is the area of the basketball court?



Formula and List of Values:

$$A = b \cdot h$$

$$A = ?$$

$$b = 42 \text{ ft}$$

$$h = 74 \text{ ft}$$

Substitution and Solve:

$$A = (42 \text{ ft})(74 \text{ ft})$$

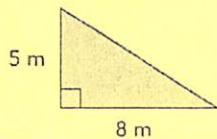
$$A = 3108$$

Final Labeled Answer:

$$A = 3108 \text{ ft}^2$$

### Example

What is the area of the right triangle shown?



Formula and List of Values:

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

$$A = ?$$

$$b = 8 \text{ m}$$

$$h = 5 \text{ m}$$

Substitution and Solve:

$$A = \frac{(8 \text{ m})(5 \text{ m})}{2}$$

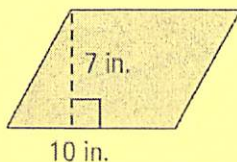
$$A = 20$$

Final Labeled Answer:

$$A = 20 \text{ m}^2$$

### Got It?

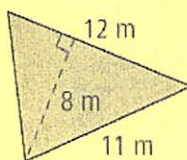
What is the area of the parallelogram?



Formula and List of Values:	Substitution and Solve:	Final Labeled Answer:
$A = b \cdot h$ $A = ?$ $b = 10 \text{ in}$ $h = 7 \text{ in}$	$A = (10 \text{ in})(7 \text{ in})$ $A = 70$	$A = 70 \text{ in}^2$

### Example

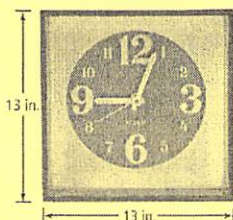
What is the area of the triangle?



Formula and List of Values:	Substitution and Solve:	Final Labeled Answer:
$A = \frac{b \cdot h}{2}$ $A = ?$ $b = 12 \text{ m}$ $h = 8 \text{ m}$	$A = \frac{(12 \text{ m})(8 \text{ m})}{2}$ $A = 48$	$A = 48 \text{ m}^2$

### Got It?

What is the area of the square clock?

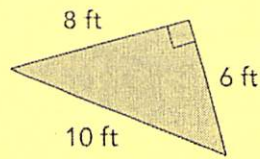


Formula and List of Values:	Substitution and Solve:	Final Labeled Answer:
$A = b \cdot h$ $A = ?$ $b = 13 \text{ in}$ $h = 13 \text{ in}$	$A = (13 \text{ in})(13 \text{ in})$ $A = 169 \text{ in}^2$	$A = 169 \text{ in}^2$



## Got It?

What is the area of the right triangle?



Formula and List of Values:

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

$$A = ?$$

$$b = 8 \text{ ft}$$

$$h = 6 \text{ ft}$$

Substitution and Solve:

$$A = \frac{(8 \text{ ft})(6 \text{ ft})}{2}$$

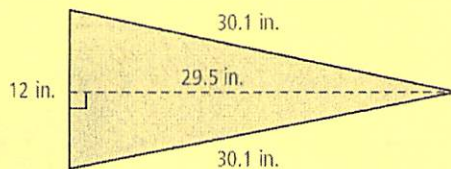
$$A = 24$$

Final Labeled Answer:

$$A = 24 \text{ ft}^2$$

## Example

What is the area of the triangle?



Formula and List of Values:

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

$$A = ?$$

$$b = 12 \text{ in}$$

$$h = 29.5 \text{ in}$$

Substitution and Solve:

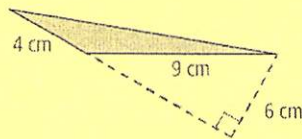
$$A = \frac{(12 \text{ in})(29.5 \text{ in})}{2}$$

$$A = 177 \text{ in}^2$$

Final Labeled Answer:

## Got It?

What is the area of the obtuse triangle?



Formula and List of Values:

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

$$A = ?$$

$$b = 4 \text{ cm}$$

$$h = 6 \text{ cm}$$

Substitution and Solve:

$$A = \frac{(4 \text{ cm})(6 \text{ cm})}{2}$$

$$A = 12 \text{ cm}^2$$

Final Labeled Answer:

## Example

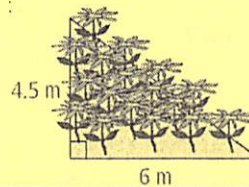
The booklet in a CD case is a square with side length 4.72 in. What is the area of the booklet? Round your answer to the nearest hundredth.



Formula and List of Values:	Substitution and Solve:	Final Labeled Answer:
$A = s^2$ $A = ?$ $s = 4.72 \text{ in.}$	$A = s^2$ $A = (4.72 \text{ in.})^2$ $A = 22.2784$	$A = 22.28 \text{ in}^2$

## Got It?

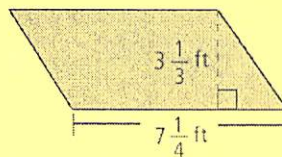
The flower garden has the shape of a right triangle. What is the area of the flower garden?



Formula and List of Values:	Substitution and Solve:	Final Labeled Answer:
$A = \frac{b \cdot h}{2}$ $A = ?$ $b = 6 \text{ m}$ $h = 4.5 \text{ m}$	$A = \frac{(6 \text{ m})(4.5 \text{ m})}{2}$ $A = 13.5$	$A = 13.5 \text{ m}^2$

## Got It?

What is the area of the parallelogram?



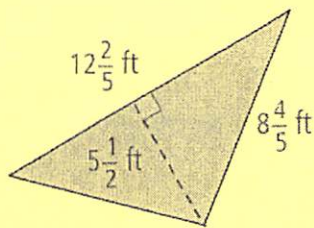
Formula and List of Values:	Substitution and Solve:	Final Labeled Answer:
$A = b \cdot h$ $A = ?$ $b = 7\frac{1}{4} \text{ ft}$ $h = 3\frac{1}{3} \text{ ft}$	$A = (7\frac{1}{4} \text{ ft})(3\frac{1}{3} \text{ ft})$ $= (\frac{29}{4}) (\frac{10}{3})$ $= \frac{145}{6}$	$A = 24\frac{1}{6} \text{ ft}^2$



Challenge:

### Example

What is the area of the triangle?



Formula and List of Values:

$$A = \frac{b \cdot h}{2} \text{ or } A = \frac{1}{2} b \cdot h$$

$$A = ?$$

$$b = 12 \frac{2}{5} \text{ ft}$$

$$h = 5 \frac{1}{2} \text{ ft}$$

Substitution and Solve:

$$A = \frac{1}{2} (12 \frac{2}{5} \text{ ft}) (5 \frac{1}{2} \text{ ft})$$

$$A = \frac{1}{2} \cdot \frac{62}{5} \cdot \frac{11}{2}$$

$$= \frac{341}{10} =$$

Final Labeled Answer:

$$A = 34 \frac{1}{10} \text{ ft}^2$$

### Example

Which rectangles have an area of 12 square units?



Area = 12 square units

Area  $\neq$  12 square units



No

0.75 9

No

$2 \frac{2}{3}$   $4 \frac{1}{2}$   $\frac{4}{3} \cdot \frac{9}{2} = 12$

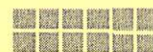
Yes

2 4

No



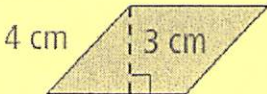
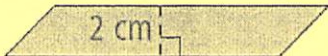


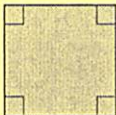

Yes



Yes

## Example

Which parallelograms have an area of  $16 \text{ cm}^2$ ?

Area = 16 cm <sup>2</sup>		Area ≠ 16 cm <sup>2</sup>	
 4 cm 3 cm 4 cm <div>No</div>	 2 cm 8 cm <div>YES</div>	 4 cm 4 cm 5 cm <div>YES</div>	
 2 <sup>2</sup> / <sub>3</sub> cm 6 cm <div>YES</div>	 4 cm 4 cm <div>YES</div>	 3.5 cm 4 cm 4 cm <div>NO</div>	

## Example

The area of a rectangular carpet is  $54 \text{ ft}^2$ . The carpet is 9 ft long. How wide is the carpet?

$$A = 54 \text{ ft}^2$$

$$L = 9 \text{ ft}$$

$$W = ?$$

$$A = b \cdot h$$

$$A = L \times W$$

$$\frac{54 \text{ ft}^2}{9 \text{ ft}} = \frac{(9 \text{ ft})(W)}{9 \text{ ft}}$$

$$6 \text{ ft} = W$$

$$\frac{54 \text{ ft}^2}{9 \text{ ft}}$$

## Got It?

A rectangular tabletop has an area of  $28 \text{ ft}^2$ . The tabletop is  $3\frac{1}{2} \text{ ft}$  wide. How long is the tabletop?

$$A = b \cdot h \quad A = L \times W$$

$$A = 28 \text{ ft}^2$$

$$L = ?$$

$$W = 3\frac{1}{2} \text{ ft}$$

$$28 \text{ ft}^2 = L \times 3\frac{1}{2} \text{ ft}$$

$$28 \div 3\frac{1}{2} = L$$

$$28 \div \frac{7}{2} = L$$

$$8 \text{ ft} = L$$

$$28 \text{ ft}^2 \div 3\frac{1}{2} \text{ ft}$$