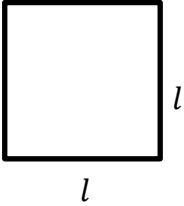
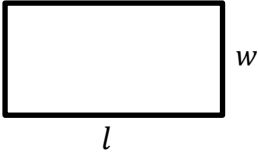
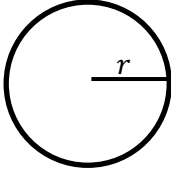
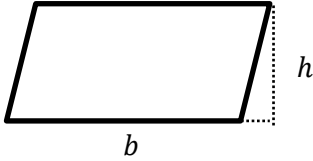
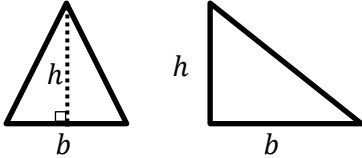


## Section 3.1 – Area (Solid and Composite Shapes)

### Area

- The amount of space it takes to fill a **2-Dimensional shape**
  - What 2-D shapes can we think of?
    - Square and Rectangles
    - Triangle
    - Circle
    - Parallelograms
  - We have known equations for all of these, let's have a look.


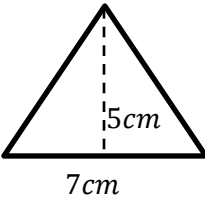
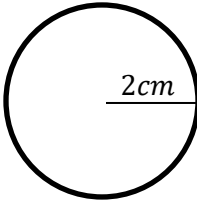
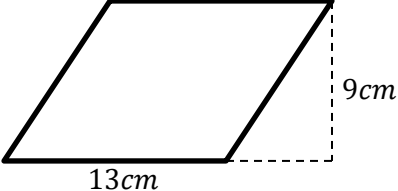
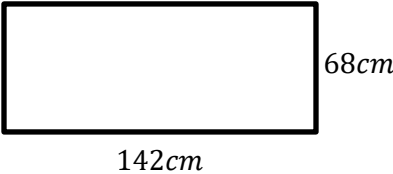
Name	Shape	Equation for Area
Square		$l * l \text{ or } l^2$
Rectangle		$l * w \text{ or } b * h$
Circle		$\pi r^2$
Parallelogram		$b * h$
Triangle		$\frac{b * h}{2}$

Workplace 11

- A few of these equations are intuitive
- We don't need to worry about proving them, all we need to know is how they work
- Like **Colour By Numbers** we have to **SUBSTITUTE** the values we have into the equations
- We need to make sure we have enough information to solve the problem

**Example:**

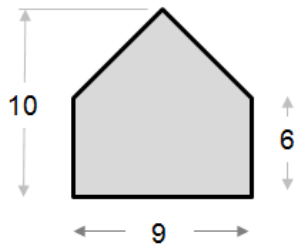
What is the Area of the following Shapes?

<p>a)</p> 	$A = l^2$ $A = 4^2$ $A = 16 \text{ cm}^2$
<p>b)</p> 	$A = \frac{bh}{2}$ $A = \frac{5 \cdot 7}{2} \rightarrow \frac{35}{2} \rightarrow 17.5 \text{ cm}^2$
<p>c)</p> 	$A = \pi r^2$ $A = \pi 2^2$ $A = 4\pi \text{ cm}^2$
<p>d)</p> 	$A = bh$ $A = 13 \cdot 9$ $A = 117 \text{ cm}^2$
<p>e)</p> 	$A = bh$ $A = 142 \cdot 68$ $A = 9656 \text{ cm}^2$

### Compound Shapes

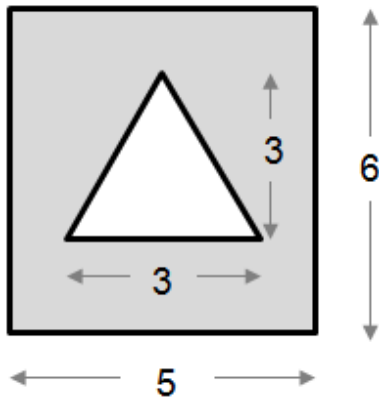
- Finding the Area of a Compound Shape is a little bit more tricky
- Compound shapes are shapes that involve the breakdown into shapes we know
- Sometimes we have to break a shape into pieces and then add the area's together
- Sometimes we have to subtract a piece of area from another

**Example:**



Break it into a triangle and square: Triangle Height of  $10 - 6 = 4$

Area of Square	Area of Triangle
$A = 6 \cdot 9 = 54$	$A = \frac{9 \cdot 4}{2} = \frac{36}{2} = 18$
Area Combined	
$54 + 18 = 72 \text{ units}^2$	



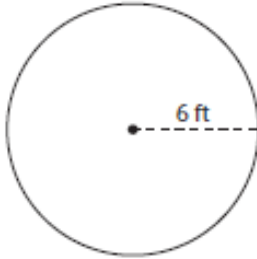
Need the triangle and square: Subtract triangle from Square

Area of Square	Area of Triangle
$A = 6 \cdot 5 = 30$	$A = \frac{3 \cdot 3}{2} = \frac{9}{2} = 4.5$
Area Combined	
$30 - 4.5 = 25.5 \text{ units}^2$	

### Section 3.1 – Practice Problems

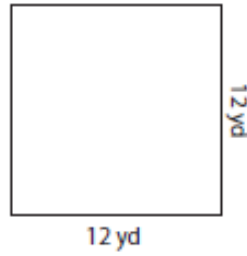
Find the area of each figure.

1)



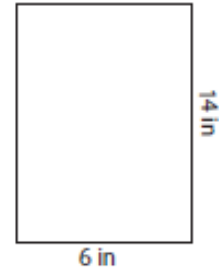
Area = \_\_\_\_\_

2)



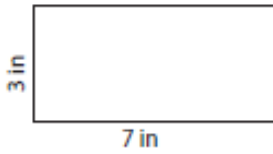
Area = \_\_\_\_\_

3)



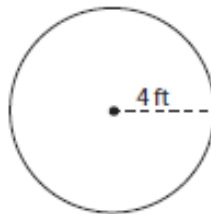
Area = \_\_\_\_\_

4)



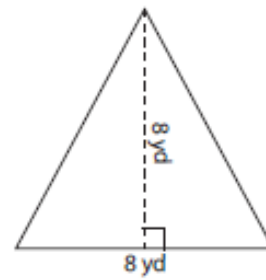
Area = \_\_\_\_\_

5)



Area = \_\_\_\_\_

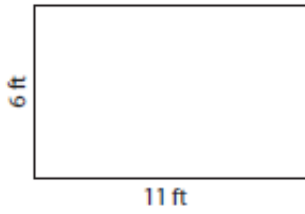
6)



Area = \_\_\_\_\_

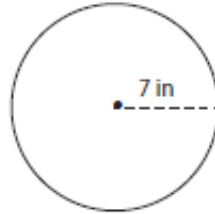
Find the area of each figure.

7)



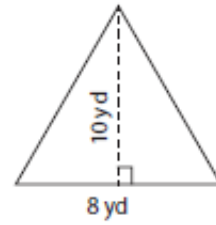
Area = \_\_\_\_\_

8)



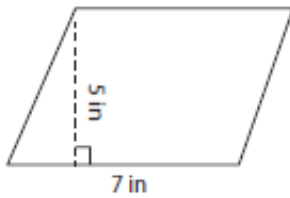
Area = \_\_\_\_\_

9)



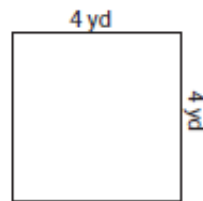
Area = \_\_\_\_\_

10)



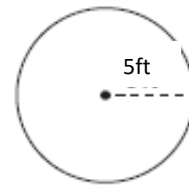
Area = \_\_\_\_\_

11)



Area = \_\_\_\_\_

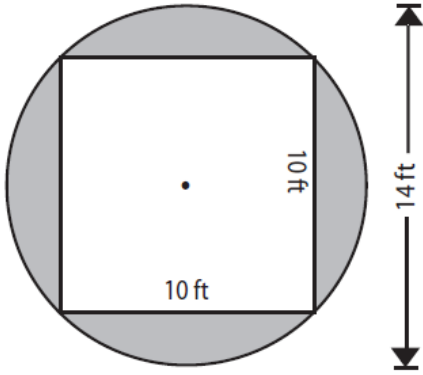
12)



Area = \_\_\_\_\_

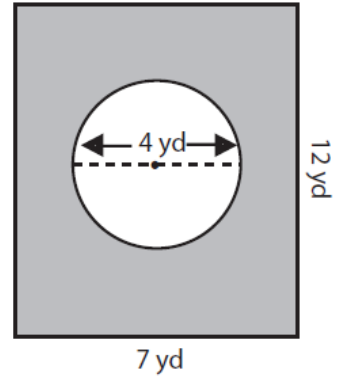
Find the Area of the Shaded Portion of the following figures.

13)



Area = \_\_\_\_\_

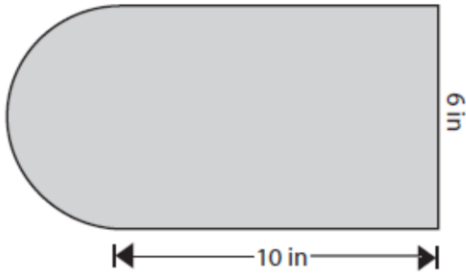
14)



Area = \_\_\_\_\_

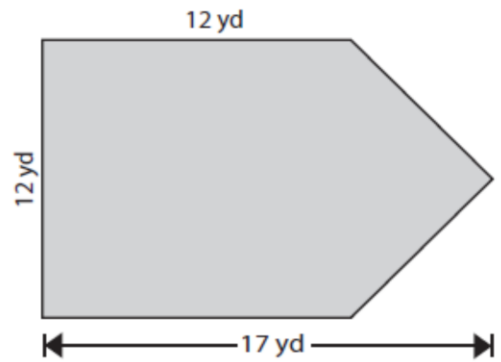
Find the area of each figure. Round the answer to 2 decimal places if necessary.

15)



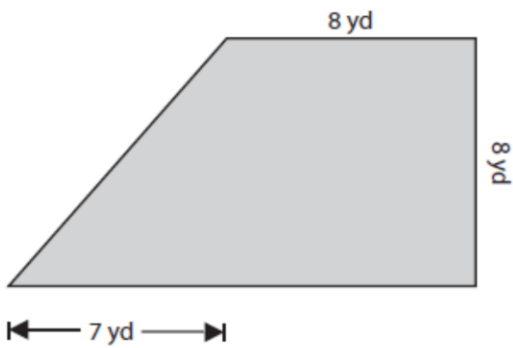
Area = \_\_\_\_\_

16)



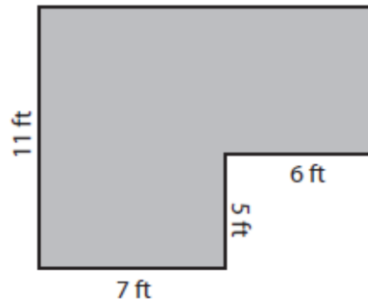
Area = \_\_\_\_\_

17)



Area = \_\_\_\_\_

18)



Area = \_\_\_\_\_

**Section 3.1 – Answer Key**

1.  $113.1ft^2$
2.  $144yd^2$
3.  $84in^2$
4.  $21in^2$
5.  $50.3ft^2$
6.  $32yd^2$
7.  $66ft^2$
8.  $153.9in^2$
9.  $40yd^2$
10.  $35in^2$
11.  $16yd^2$
12.  $78.5ft^2$
13.  $53.9ft^2$
14.  $71.4yd^2$
15.  $74.1in^2$
16.  $174yd^2$
17.  $92yd^2$
18.  $113ft^2$