

Day 1: Area of Shapes

1) What does the area of a shape represent? How much paint I need to cover the wall space.

This means that our units, when finding area will always be ft², in², cm², mi², ...

Finding the Area of Circles

2) We recently learned how to find the area of a circle... What is the equation for finding the area of a circle?

*Area of a Circle: $A = \pi r^2$

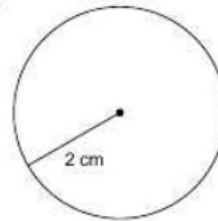
Find the area of each circle in ¹⁾ EXACT and ²⁾ APPROXIMATE forms.

3)

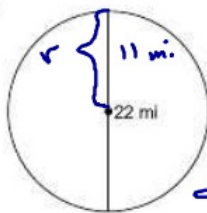


$A = \pi (4)^2$
 1) $A = 16\pi \text{ ft}^2$
 2) $A \approx 16(3.14)$
 $\approx 50.24 \text{ ft}^2$

¹⁾ EXACT π ²⁾ APPROXIMATE (use 3.14)

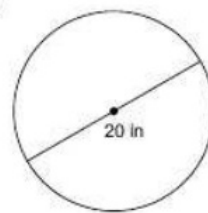


5)



$A = \pi (11)^2$
 1) $A = 121\pi \text{ mi}^2$
 2) $A \approx 121(3.14)$
 $\approx 379.94 \text{ mi}^2$

6)



7) radius = 7 mi

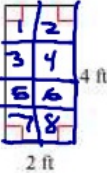
$A = \pi (7)^2$
 1) $A = 49\pi \text{ mi}^2$
 2) $A \approx 49(3.14)$
 $\approx 153.86 \text{ mi}^2$

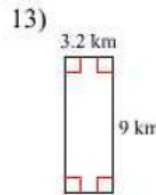
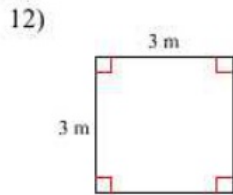
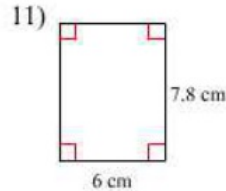
8) diameter = 4 in

Finding the Area of a Square or Rectangle

9) *Area of Square/Rectangle: $A = \ell \cdot w$

Find the area of each square or rectangle.

10)  $A = 2 \cdot 4$
 $A = 8 \text{ ft}^2$

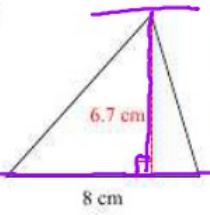


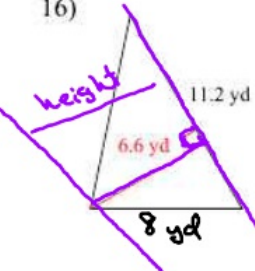
Area of a Triangle

14) To find the area of a triangle, we must know the base and the height, which may sometimes occur outside of the triangle.

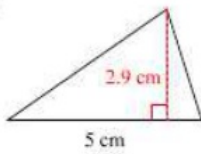
*Area of a Triangle: $A = \frac{1}{2} \cdot b \cdot h$ $A = \frac{b \cdot h}{2}$

Find the area of each triangle.

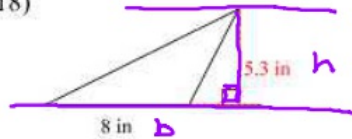
15)  $A = \frac{1}{2} \cdot 8 \cdot 6.7$
 $= \frac{8 \cdot 6.7}{2}$
 $= 26.8 \text{ cm}^2$

16)  $A = \frac{1}{2} \cdot 11.2 \cdot 6.6$
 $= 36.96 \text{ yds}^2$

17)



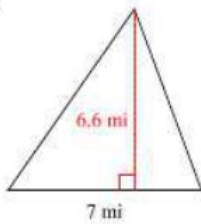
18)



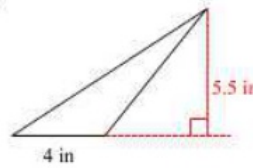
$$A = \frac{1}{2} \cdot 8 \cdot 5.3$$

$$= 21.2 \text{ in}^2$$

19)



20)



Finding the Area of Polygons

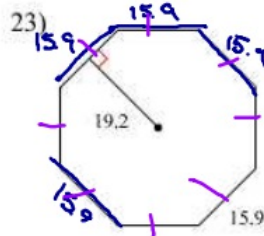
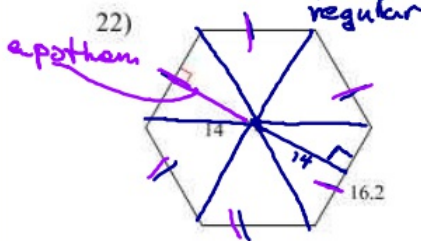
21) A polygon is a closed shape with 3 or more straight segments.

A regular polygon is a polygon that all segments and angles are congruent.

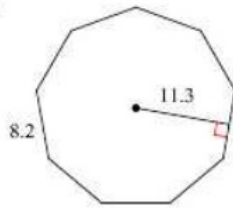
An polygon has what is called an apothem. (This measurement is similar to the radius of a circle, it goes from the center of the shape to the edge at a 90 degree angle.)

*Area of a Regular Polygon: $A = \frac{1}{2} \cdot b \cdot a \cdot \#s$

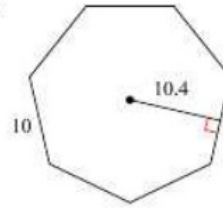
Find the area of each polygon. Round your answer to the nearest tenth, if necessary.



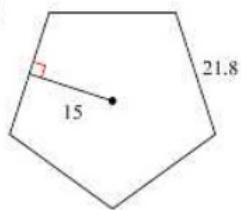
24)



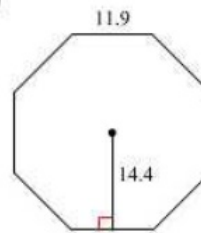
25)



26)



27)



28) nonagon (9 sides)
apothem is 7.5 cm
side is 5.5 cm

29) heptagon (7 sides)
apothem is 8.3 ft
side is 8 ft

30) hexagon (6 sides)
apothem is 10.4 mm
side is 12 mm

31) pentagon (5 sides)
apothem is 8.1 in
side is 11.8 in

32) hexagon (6 sides)
apothem is 9.5 yd
side is 11 yd

33) octagon (8 sides)
apothem is 22.5 in
side is 18.7 in