

## Geometry

### Unit: Circles

#### Section: Circumference and Area of a Circle

#### Review Worksheet KEY

1) What is the circumference and area of a circle with radius 10 inches?

$$C = 2\pi r = 2\pi(10) = 20\pi \approx 62.83 \text{ inches}$$

$$A = \pi r^2 = \pi(10)^2 = 100\pi \approx 314.16 \text{ square inches}$$

2) What is the circumference and area of a circle with diameter 8 feet?

$$r = \frac{1}{2}d = \frac{1}{2}(8) = 4$$

$$C = 2\pi r = 2\pi(4) = 8\pi \approx 25.13 \text{ feet}$$

$$A = \pi r^2 = \pi(4)^2 = 16\pi \approx 50.27 \text{ square feet}$$

3) What is the diameter of a circle with area equal to  $169\pi \text{ m}^2$ ?

$$A = \pi r^2$$

$$169\pi = \pi r^2$$

$$169 = r^2$$

$$13 = r$$

$$d = 2r = 2(13) = 26 \text{ m}$$

4) What is the arc length and area of a sector in a circle with radius 5 cm and a central angle of  $43^\circ$ ?

$$\text{arc length} = \frac{43}{360} 2\pi(5) = \frac{430}{360} \pi = \frac{43}{36} \pi \approx 3.75 \text{ cm}$$

$$\text{area of sector} = \frac{43}{360} \pi(5)^2 = \frac{1075}{360} \pi = \frac{215}{72} \pi \approx 9.38 \text{ cm}^2$$

5) What is the central angle in a circle with radius 9 ft and a sector with an area equal to  $85.5299 \text{ ft}^2$ ?

What is the arc length of that sector?

$$\text{area of sector} = \frac{\text{angle}}{360} \pi r^2$$

$$85.5299 = \frac{x}{360} \pi(9)^2$$

$$85.5299 = \frac{81\pi}{360} x$$

$$\frac{360}{81\pi} \cdot 85.5299 = \frac{360}{81\pi} \cdot \frac{81\pi}{360} x$$

$$121 = x$$

$$\text{arc length} = \frac{121}{360} 2\pi(9) = \frac{2178}{360} \pi = \frac{121}{20} \pi \approx 19.007 \text{ ft}$$