Warm Up
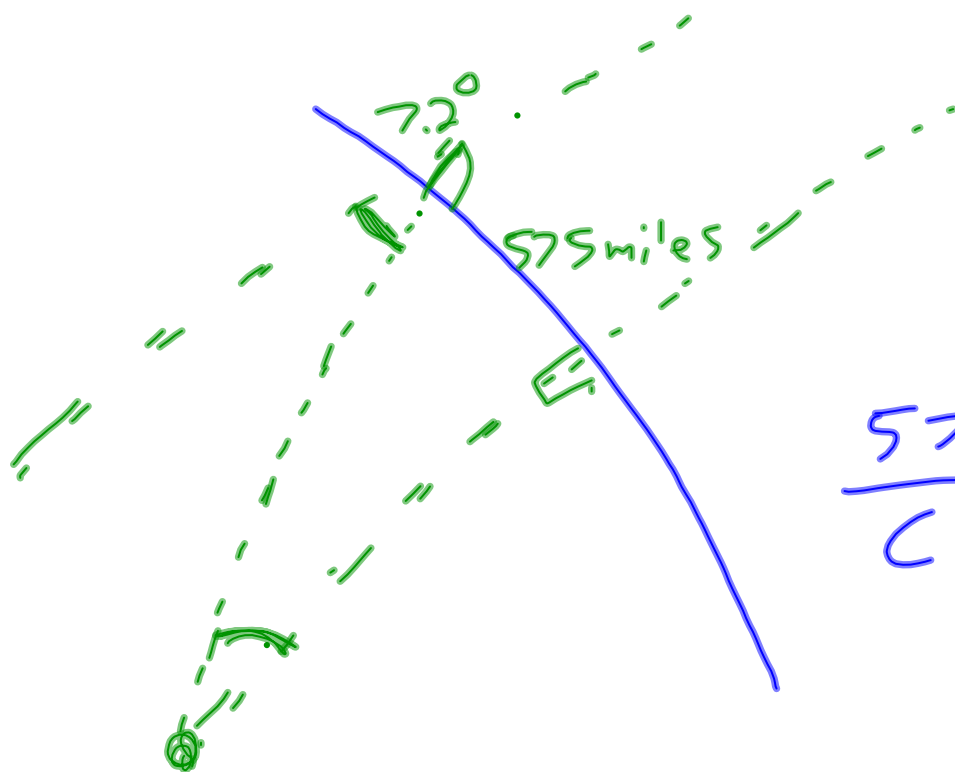
$C = \pi d$

Find the circumference of a circle with the given measure.

1.   radius = 8 cm $C = 16\pi$ cm

2.   diameter = 4 feet $C = 4\pi$ ft.

3.   Solve: $x^2 = \dfrac{100}{\pi}$ $x^2 \approx 31.8$
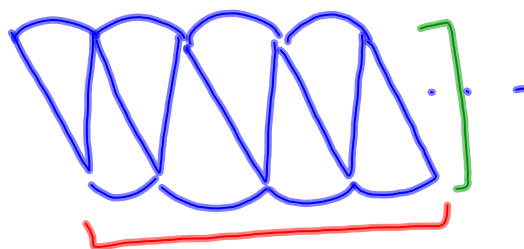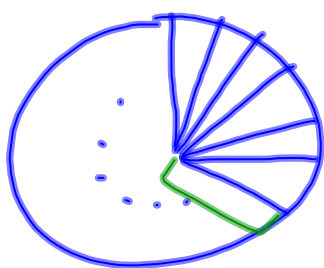
$x \approx 5.6$

$7.2°$

575 miles

$$\dfrac{575}{C} = \dfrac{7.2°}{360°}$$
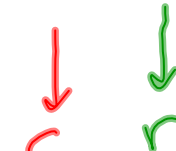
11-5   Areas of circles and sectors

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

$$\pi = \frac{c}{d}$$

$A = b \cdot h$

$C = \pi d$

$$A = \frac{c}{2} \cdot r$$

$$A = \frac{\pi \cdot d}{2} \cdot r = A = \pi \cdot r \cdot r = \pi r^2$$

Ex 1   Find the area of a circle with $r = 1.6$ in.

$$A = \pi r^2 \quad = \pi \cdot 1.6^2$$

$$\boxed{8.04 \text{ in}^2} \qquad \boxed{= 2.56\pi \text{ in}^2}$$

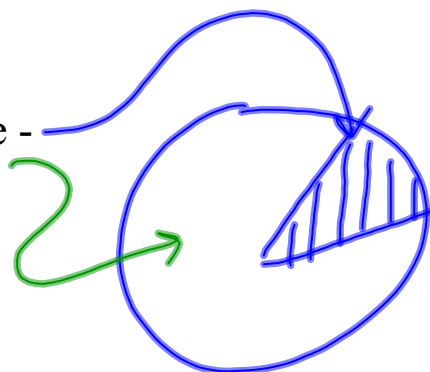Find the diameter of a circle with $A = 28.3$ cm²

$$A = \pi r^2$$
$$28.3 = \pi r^2$$
$$3 \text{ cm} \approx r$$

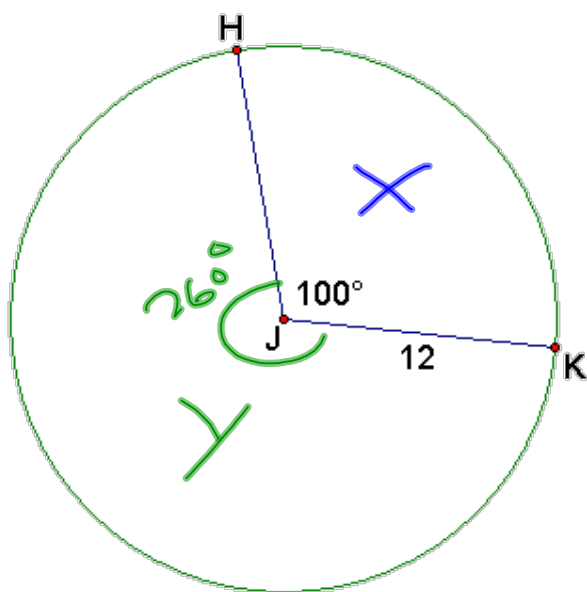$$d \approx 6 \text{ cm}$$

Sector of a circle -

$$\frac{\text{area of sector } ACB}{\text{area of circle}} = \frac{m\overset{\frown}{AB}}{360°}$$

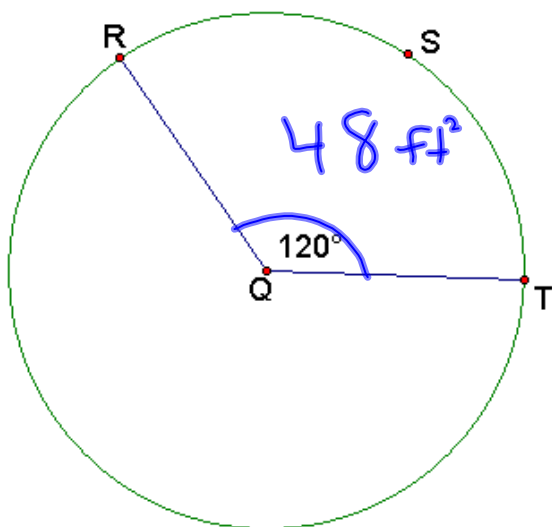Ex 2   Find the areas of the sectors formed by angle HJK

$$\frac{x}{144\pi} = \frac{100°}{360°}$$

452

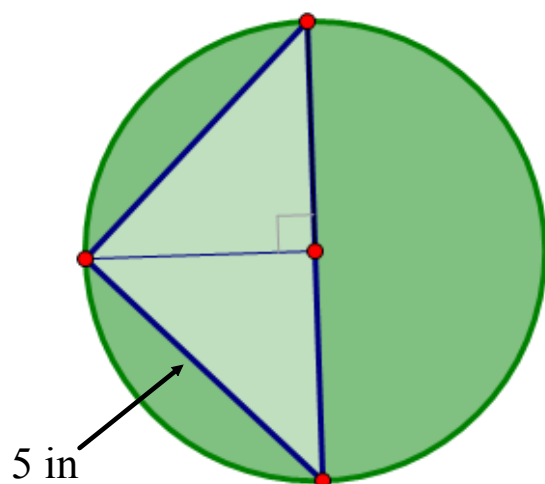$$x \approx 125$$

$$\frac{y}{452} = \frac{260°}{360°}$$

$$y \approx 327$$

Ex 3   Find the area of circle Q if the area of sector $RSTQ = 48$ ft²
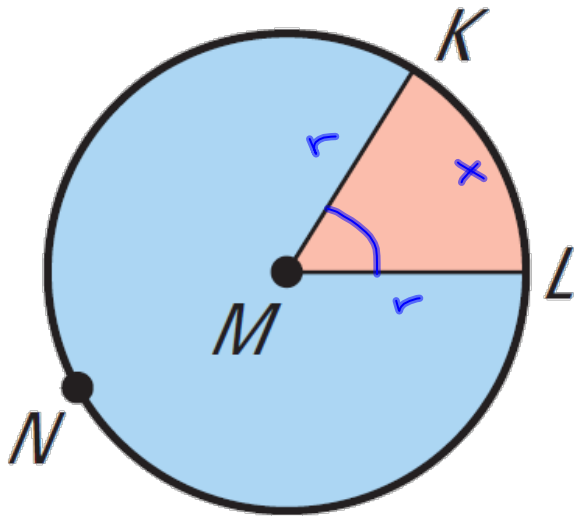
$$\frac{48}{x} = \frac{120°}{360°}$$

$$A = 144 \text{ ft}^2$$

Ex 4   Find the area of the dark green shaded region.

5 in

Ex 5   It takes about 1/4 cup of dough to make a tortilla with a 6 inch diameter. How much dough does it take to make a tortilla with a 12 inch diameter? Explain your reasoning.

Ex. 6   The area of circle M is 260.67 in². The area of sector
KML is 42 in². Find the perimeter of the red region.

$A = \pi r^2$

$260.67 = \pi \cdot r^2$

$r \approx 9.1$

$\dfrac{42}{260.67} = \dfrac{x}{360}$

$x \approx 58°$

perim. $= 9.1 + 9.1 + 9.2$

$= 27.4$ in

$\dfrac{x}{18.2\pi} = \dfrac{58°}{360°}$

$x \approx 9.2$