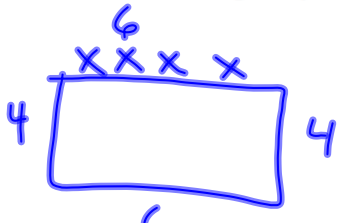
Bell Work

18. A pizza parlor offers pizzas with diameters of 8 in., 10 in., and 12 in. Find the area of each size pizza. Round to the nearest tenth. If the pizzas cost $9, $12, and $18 respectively, which is the better buy?

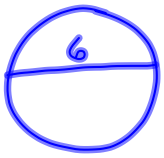
$A = \pi r^2$

($9) 8 in.	($12) 10 in	($18) 12 in
$A = \pi(4)^2$	$A = \pi(5)^2$	$A = \pi(6)^2$
$A = \frac{50.3 \text{ in}^2}{9}$	$A = \frac{78.5 \text{ in}^2}{12}$	$A = \frac{113.1 \text{ in}^2}{18}$
$5.6 \text{ in}^2/\$$	$6.5 \text{ in}^2/\$$	$6.3 \text{ in}^2/\$$

19. **Critical Thinking** Which do you think would seat more people, a 4 ft by 6 ft rectangular table or a circular table with a diameter of 6 ft? How many people would you sit at each table? Explain your reasoning.



$P = 4+4+6+6 = 20 \text{ ft}$



$C = \pi \cdot d$

$C = \pi(6)$

$C = 18.8 \text{ ft}$

21. Multi-Step A circular track for a model train has a diameter of 8.5 feet. The train moves around the track at a constant speed of 0.7 ft/s.

a. To the nearest foot, how far does the train travel when it goes completely around the track 10 times?

$C = \pi d$

$C = \pi(8.5)$

$C = 26.7(10) = 267$ ft

b. To the nearest minute, how long does it take the train to go completely around the track 10 times?

$\frac{0.7 \text{ ft}}{1 \text{ sec}}$

$\frac{267 \text{ ft}}{1} \cdot \frac{1 \text{ sec}}{0.7 \text{ ft}}$

$\frac{381.4 \text{ sec}}{1} \cdot \frac{1 \text{ min}}{60 \text{ sec}}$

6 min.

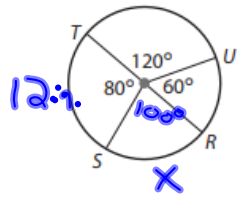
22. The Parthenon is a Greek temple dating to about 445 BCE. The temple features 46 Doric columns, which are roughly cylindrical. The circumference of each column at the base is about 5.65 meters. What is the approximate diameter of each column? Round to the nearest tenth.

$C = \pi \cdot d$

$\frac{5.65}{\pi} = \frac{\pi \cdot d}{\pi}$

$1.8 = d$

21. **Algebra** The length of $\overset{\frown}{TS}$ is 12 in. Find the length of $\overset{\frown}{RS}$.



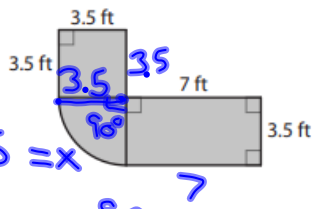
12 in / 80° = x in / 100°

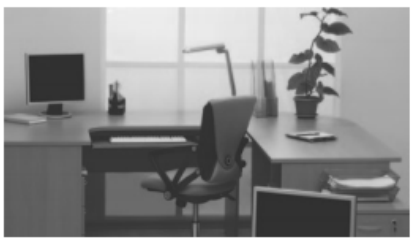
80x = 1200

80 80

x = 15 in.

22. **Multi-Step** The diagram shows the plan for a putting a decorative trim around a corner desk. The trim will be 4-inch high around the perimeter of the desk. The curve is one quarter of the circumference of a circle. Find the length of trim needed to the nearest half foot.





$x = \frac{90}{360} \cdot 2\pi(3.5)$

$x = 5.5$

3.5 + 5.5 + 7 + 3.5 + 7 + 3.5 + 3.5

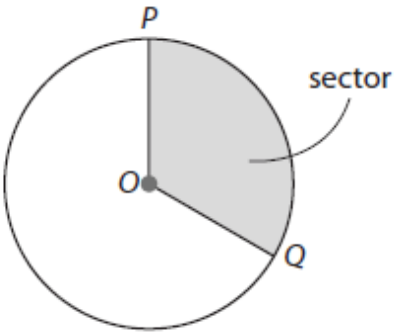
33.5 ft

16.3 Sector Area

How do you find the area of a sector of a circle?

Sector- a region bounded by 2 radii and their intercepted arc

Name a sector like an angle but without the angle symbol



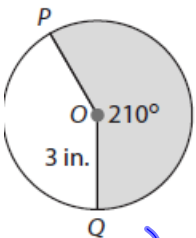
Sector POQ

Area of a Sector

The area A of a sector with a central angle of $m°$ of a circle with radius r is given by $A = \frac{m}{360} \cdot \pi r^2$

Find the area of each sector, as a multiple of π and to the nearest hundredth.

1. sector POQ

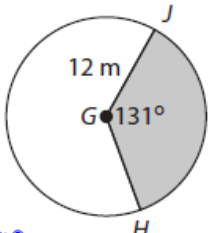


$A = \frac{m}{360} \cdot \pi r^2$

$A = \frac{210}{360} \cdot \pi (3)^2$

$A = 5.25\pi \,/\, 16.49 \text{ in}^2$

2. sector HGJ



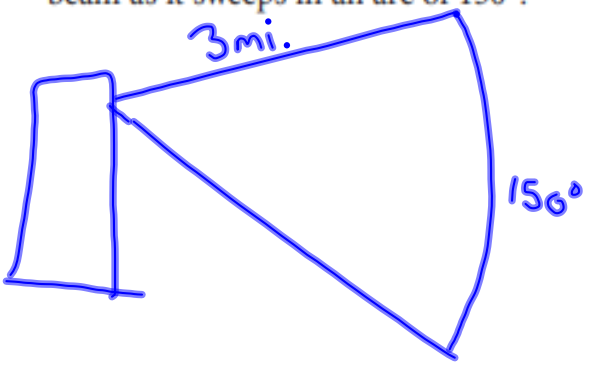
$A = \frac{m}{360} \cdot \pi r^2$

$A = \frac{131}{360} \cdot \pi (12)^2$

$A = 52.4\pi \,/\, 164.62 \text{ m}^2$

Example 2 **Find the area described.**

(A) A beam from a lighthouse is visible for a distance of 3 mi. To the nearest square mile, what is the area covered by the beam as it sweeps in an arc of 150°?



$A = \frac{150}{360} \cdot \pi(3)^2$

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

(B) A circular plot with a 180 foot diameter is watered by a spray irrigation system. To the nearest square foot, what is the area that is watered as the sprinkler rotates through an angle of 50°?

$A = \frac{m}{360} \cdot \pi r^2$

$A = \frac{50}{360} \cdot \pi(90)^2$

$A = 3,534 \text{ ft}^2$

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(5) $63\pi / 197.7 cm^2$
(6) $2\pi / 6.3 ft^2$
(7) $\frac{\pi}{9} / 0.3 mm^2$
(8) $44\pi / 138.2 m^2$
(9) $100\pi / 314.2 in^2$
(10) $\frac{320}{3}\pi / 335.1 cm^2$
(14) $9\pi / 28.7 m^2$
(15) $24\pi / 75.40 cm^2$
(16) $\frac{2}{9}\pi / 0.70 ft^2$
(17) $\frac{49}{90}\pi / 1.64 ft^2$