

key

Circumference/Area/Arc Length/Sector Area

Date

Period

1) The circumference of a circle is the distance around the outside of the circle.

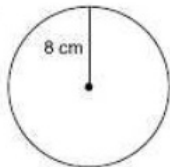
The formula to find the circumference is: $2\pi r$ or $d\pi$

The area of a circle is the number of square units inside the circle.

The formula to find the area is: πr^2

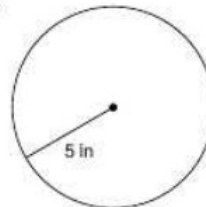
Find the circumference of each circle. List your answer A) exact form (leaving pi in your answer), and B) approximate form (using 3.14 for pi). Don't forget your units.

2)



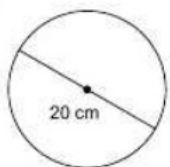
$$\begin{aligned} C &= 2\pi(8) \\ &= 16\pi \text{ cm} \\ &\approx 50.24 \text{ cm} \end{aligned}$$

3)



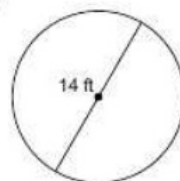
$$\begin{aligned} C &= 2\pi(5) \\ &= 10\pi \text{ in} \\ &\approx 31.4 \text{ in} \end{aligned}$$

4)



$$\begin{aligned} C &= 20\pi \text{ cm} \\ &\approx 62.8 \text{ cm} \end{aligned}$$

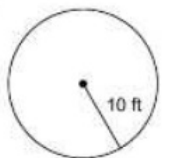
5)



$$\begin{aligned} C &= 14\pi \text{ ft} \\ &\approx 43.96 \text{ ft} \end{aligned}$$

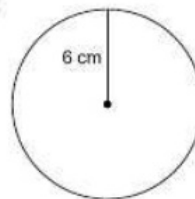
Find the area of each. List your answer A) exact form and B) approximate form. Don't forget units!

6)



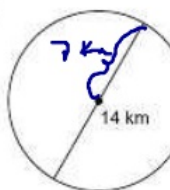
$$\begin{aligned} A &= \pi(10)^2 \\ &= 100\pi \text{ ft}^2 \\ &\approx 314 \text{ ft}^2 \end{aligned}$$

7)



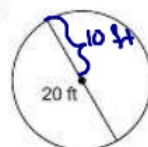
$$\begin{aligned} A &= \pi(6)^2 \\ &= 36\pi \text{ cm}^2 \\ &\approx 113.04 \text{ cm}^2 \end{aligned}$$

8)



$$\begin{aligned} A &= \pi(7)^2 \\ &= 49\pi \text{ km}^2 \\ &\approx 153.86 \text{ km}^2 \end{aligned}$$

9)



$$\begin{aligned} A &= \pi(10)^2 \\ &= 100\pi \text{ ft}^2 \\ &\approx 314 \text{ ft}^2 \end{aligned}$$

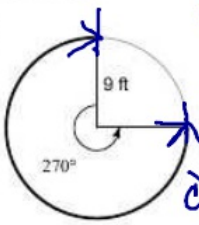
10) Arc angle vs. Arc length

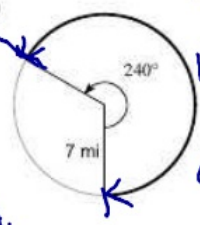
Arc angle is measured in degrees. Arc length is measured in units.

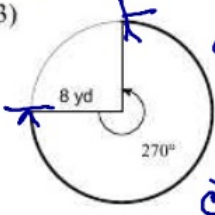
To find Arc Length:

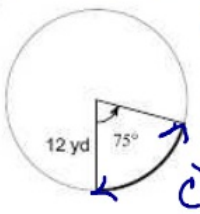
- Calculate the CIRCUMFERENCE
- Find the fraction of the circle the arc represents (put the angle measure over 360)
- Multiply the circumference by the fraction

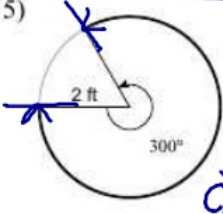
Find the length of each arc. List your answer A) exact form, and B) approximate form. Don't forget units.

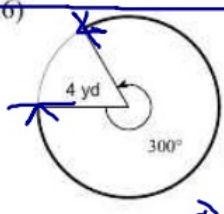
11) 
 a) $C = 2\pi(9)$
 $= 18\pi$
 b) $\frac{270}{360} = \frac{3}{4}$
 c) $Al = \left(\frac{3}{4}\right) 18\pi$
 $= 13.5\pi \approx 42.39 \text{ ft.}$

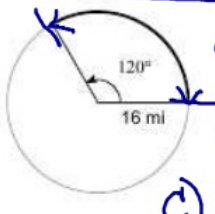
12) 
 a) $C = 2\pi(7)$
 $= 14\pi$
 b) $\frac{240}{360} = \frac{2}{3}$
 c) $Al = \left(\frac{2}{3}\right) 14\pi$
 $= \frac{28}{3}\pi \approx 29.31 \text{ mi}$

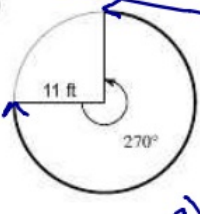
13) 
 a) $C = 2\pi(8)$
 $= 16\pi$
 b) $\frac{270}{360} = \frac{3}{4}$
 c) $Al = \left(\frac{3}{4}\right) 16\pi$
 $= 12\pi \approx 37.68 \text{ yd.}$

14) 
 a) $C = 2\pi(12)$
 $= 24\pi$
 b) $\frac{75}{360} = \frac{5}{24}$
 c) $Al = \left(\frac{5}{24}\right) 24\pi$
 $= 5\pi \approx 15.7 \text{ yd.}$

15) 
 a) $C = 2\pi(2)$
 $= 4\pi$
 b) $\frac{300}{360} = \frac{5}{6}$
 c) $Al = \left(\frac{5}{6}\right) 4\pi$
 $= \frac{10}{3}\pi \approx 10.47 \text{ ft.}$

16) 
 a) $C = 2\pi(4)$
 $= 8\pi$
 b) $\frac{300}{360} = \frac{5}{6}$
 c) $Al = \left(\frac{5}{6}\right) 8\pi$
 $= \frac{20}{3}\pi \approx 20.93 \text{ yds}$

17) 
 a) $C = 2\pi(16)$
 $= 32\pi$
 b) $\frac{120}{360} = \frac{1}{3}$
 c) $Al = \left(\frac{1}{3}\right) 32\pi$
 $= \frac{32}{3}\pi \approx 33.49 \text{ mi.}$

18) 
 a) $C = 2\pi(11)$
 $= 22\pi$
 b) $\frac{270}{360} = \frac{3}{4}$
 c) $Al = \left(\frac{3}{4}\right) 22\pi$
 $= \frac{33}{2}\pi \approx 51.81 \text{ ft.}$

19) Sector Area of a circle is

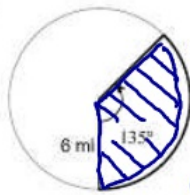
the area of a section of the circle.

To find the sector area:

- Find the AREA of the entire circle
- Find the fraction of the circle the section represents (put the angle measure over 360)
- Multiply the area by the fraction

Find the area of each sector. List your answer A) exact form and B) approximate form. Don't forget units.

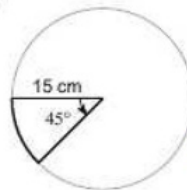
20) a) $A = \pi(6)^2 = 36\pi$



b) $\frac{135}{360} = \frac{3}{8}$

c) $SA = \left(\frac{3}{8}\right) 36\pi = \frac{27}{4}\pi \approx 21.2 \text{ mi}^2$

21)

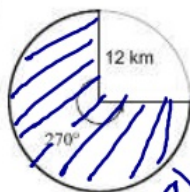


a) $A = \pi(15)^2 = 225\pi$

b) $\frac{45}{360} = \frac{1}{8}$

c) $SA = \left(\frac{1}{8}\right) 225\pi = \frac{225}{8}\pi \approx 88.31 \text{ cm}^2$

22)

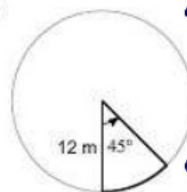


a) $A = \pi(12)^2 = 144\pi$

b) $\frac{270}{360} = \frac{3}{4}$

c) $SA = \left(\frac{3}{4}\right) 144\pi = 108\pi \approx 339.12 \text{ km}^2$

23)

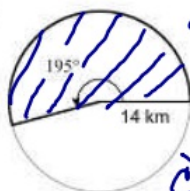


a) $A = \pi(12)^2 = 144\pi$

b) $\frac{45}{360} = \frac{1}{8}$

c) $SA = \left(\frac{1}{8}\right) 144\pi = 18\pi \approx 56.52 \text{ m}^2$

24)

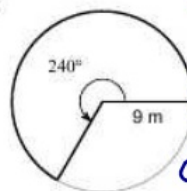


a) $A = \pi(14)^2 = 196\pi$

b) $\frac{195}{360} = \frac{13}{24}$

c) $SA = \left(\frac{13}{24}\right) 196\pi = \frac{637}{6}\pi \approx 333.36 \text{ km}^2$

25)

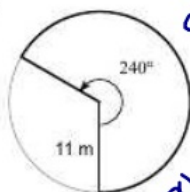


a) $A = \pi(9)^2 = 81\pi$

b) $\frac{240}{360} = \frac{2}{3}$

c) $SA = \left(\frac{2}{3}\right) 81\pi = 54\pi \approx 169.56 \text{ m}^2$

26)

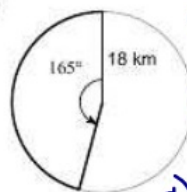


a) $A = \pi(11)^2 = 121\pi$

b) $\frac{240}{360} = \frac{2}{3}$

c) $SA = \left(\frac{2}{3}\right) 121\pi = \frac{242}{3}\pi \approx 253.29 \text{ m}^2$

27)



a) $A = \pi(18)^2 = 324\pi$

b) $\frac{165}{360} = \frac{11}{24}$

c) $SA = \left(\frac{11}{24}\right) 324\pi = \frac{297}{2}\pi \approx 466.29 \text{ km}^2$