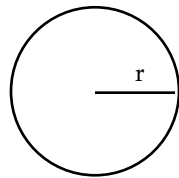


Radians 20

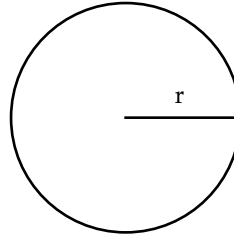
Circles : Review

The Circumference of a circle is $C = 2\pi r$.

1) Find the circumference of the circles shown below.



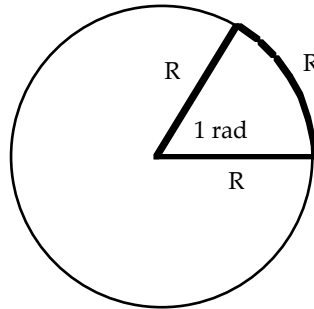
$$r = 0.88$$



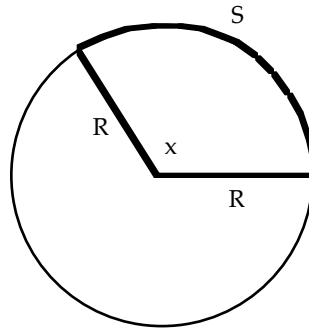
$$r = 1.2$$

Radians

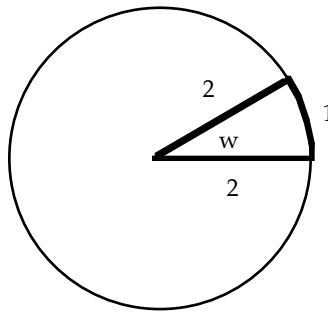
A different way to measure angles is with radians. This is a natural way to measure angles. We trace out a distance R , (one radius), along the circumference of a circle. The angle subtended equals one radian, as shown.



In general, the subtended angle equals s/R . The letter s represents the arc length. The angle x equals s/R radians.



Example: angle $w = 0.5$ rads.



If the radius of a circle equals 1, the circumference equals 2π . So 2π radians equals 360 degrees.

$$2\pi \text{ rads} = 360 \text{ degrees}$$

2) Convert radians to degrees.

a) π b) $\pi/2$ c) 3π d) -5π

e) $\pi/6$ f) $\pi/4$ g) 2 h) 7.6

3) Convert degrees to rads.

a) 30° b) 135° c) 90° d) 450°

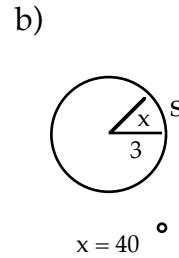
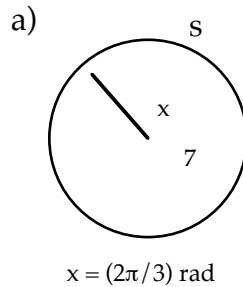
e) -120°

f) 720°

g) 1°

h) 137.8°

4) Find the arc length s .



5) Find $\sin\theta$ and $\cos\theta$ using your calculator. Change from degree mode to radian mode.

a) $\sin(\pi)$

b) $\sin(\pi/2)$

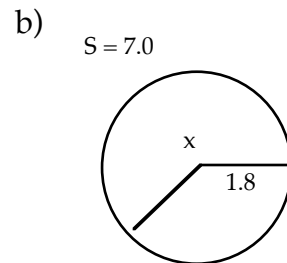
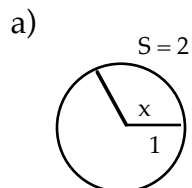
c) $\sin(\pi/6)$

d) $\cos(2\pi/3)$

e) $\cos(\pi/4)$

f) $\cos(-\pi)$

6) Find the angle x (in rads)



Answers: 1) 5.5, 7.5, 2)a) 180° , b) 90° , c) 540° , d) -900° , e) 30° , f) 45° , g) 114.6° , h) 435.4° , 3)a) $(\pi/6)R$, b) $(3\pi/4)R$, c) $(\pi/2)R$, d) $(5\pi/2)R$, e) $-(2\pi/3)R$, f) $4\pi R$, g) $(2\pi/360)R$, h) $2.4R$, 4)a) $(14\pi/3)$, b) $(2\pi/3)$, 5)a) 0.0, b) 1.0, c) 0.50, d) -0.50, e) 0.71, f) -1.0, 6)a) 2 rads, b) 3.9 rads.