

Trigonometry
Change of Angle
Radians to degrees

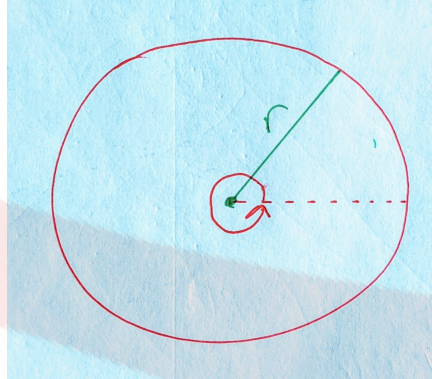
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Radians to degrees

The perimeter of the circle is given by P and the formula below,



$$P = \text{length of the distance around the circle} = 2\pi r$$

If we solve for 2π we get the following,

$$\frac{P}{r} = 2\pi$$

which is the angle revolved around to go around edge of the circle one time. In degrees we know that one revolution around a circle is 360° . This means,

$$2\pi = 360^\circ$$

$$\pi = 180^\circ \text{ or}$$

$$\pi \text{ radians} = 180^\circ$$

Given that π radians = 180° we can convert radians to degrees and vice versa. Let's consider some examples.

Convert $\frac{5\pi}{3}$ radians to degrees.

$$\frac{5\pi}{3} = x^\circ$$

$$\pi = 180^\circ$$

$$\frac{5\pi/3}{\pi} = \frac{x}{180}$$

$$\frac{5(180)}{3} = x$$

$$\therefore 300^\circ = x$$

Exercises

Convert the following angles to degrees.

a) $-\pi$

e) $\frac{7\pi}{11}$

b) $\frac{7\pi}{2}$

f) $\frac{7\pi}{3}$

c) $\frac{9\pi}{5}$

g) $\frac{5\pi}{4}$

d) $\frac{6\pi}{5}$

h) $\frac{\pi}{2}$

i) $\frac{5\pi}{6}$

j) $\frac{3\pi}{2}$