Trigonometry
Sine, Cosine, Tangent



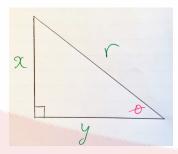
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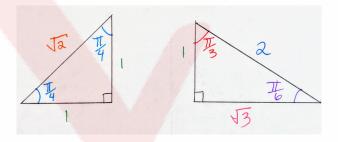
Sine, Cosine and Tangent

Let's consider the right angled triangle below.



We have the following trigonometric ratios,

$$\sin \theta = \frac{x}{r}, \cos \theta = \frac{y}{r}, \tan \theta = \frac{x}{y}$$



From left triangle we have the following trigonometric ratios:

$$\sin\frac{\pi}{4} = \frac{1}{\sqrt{2}}, \cos\frac{\pi}{4} = \frac{1}{\sqrt{2}}, \tan\frac{\pi}{4} = 1$$

From right triangle we have the following trigonometric ratios:

$$\sin\frac{\pi}{3} = \frac{\sqrt{3}}{2}, \cos\frac{\pi}{3} = \frac{1}{2}, \tan\frac{\pi}{3} = \frac{\sqrt{3}}{1}$$

$$\sin\frac{\pi}{6} = \frac{1}{2}, \cos\frac{\pi}{6} = \frac{\sqrt{3}}{2}, \tan\frac{\pi}{6} = \frac{1}{\sqrt{3}}$$



Exercises

What is the sine, cosine and tangent of the following radian angles?

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

e)
$$\frac{\pi}{6}$$

b)
$$-\pi$$

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

c)
$$3\pi$$

g)
$$\frac{4\pi}{3}$$

d)
$$\frac{\pi}{4}$$

h)
$$\frac{7\pi}{6}$$



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

j) $\frac{11\pi}{6}$