

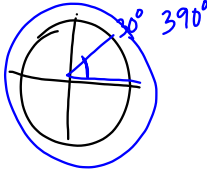
4.3 Unit Circle Part 1

Coterminal angles: Angles that are in the same spot. More than one time around the circle.

If it is degrees add 360

If it is radians add 2π

$\frac{\pi}{6} + 2\pi$
 $\frac{1}{6} + 2 \left[\frac{13\pi}{6} \right]$



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Ex 1) Name two angles that are coterminal with 30°

(What is another angle in the same spot as 30°)

$30 + 360 = 390^\circ$
 $360 + 390 = 750^\circ$

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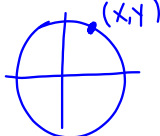
A point on the circle is still considered (x,y)

The x-value is the cosine, the y-value is the sine.

(cos, sin) is the same as (x,y)

X - cos
 Y - sin

Sunny

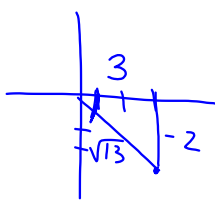


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Consider the point (3,-2)

1. Graph the point
2. Draw a line from the origin to the point
3. Draw a line perpendicular to the x-axis
4. Use Pythagorean Theorem to solve for the hypotenuse

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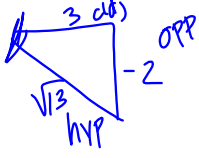


Pythag theorem

$a^2 + b^2 = c^2$
 $(3)^2 + (-2)^2 = c^2$
 $9 + 4 = c^2$
 $\sqrt{13} = \sqrt{c^2}$
 $\sqrt{13} = c$

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Now use the triangle to evaluate the six trig ratios. Always use the angle the hypotenuse forms with the x-axis.




$\sin \theta = \frac{-2}{\sqrt{13}}$
 $\cos \theta = \frac{3}{\sqrt{13}}$
 $\tan \theta = \frac{-2}{3}$

$\csc \theta = -\frac{\sqrt{13}}{2}$
 $\sec \theta = \frac{\sqrt{13}}{3}$
 $\cot \theta = -\frac{3}{2}$

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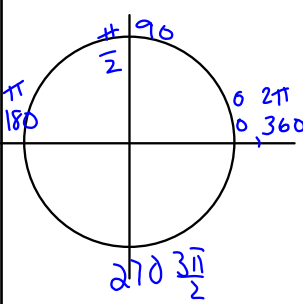
#3 Evaluate the 6 trig ratios of the point (-1,2)



$(-1)^2 + (2)^2 = c^2$
 $1 + 4 = c^2$
 $\sqrt{5} = c$

$\sec \theta = \frac{\sqrt{5}}{-1} = -\sqrt{5}$
 $\cos \theta = \frac{-1}{\sqrt{5}}$
 $\sin \theta = \frac{2}{\sqrt{5}}$
 $\csc \theta = \frac{\sqrt{5}}{2}$
 $\cot \theta = \frac{-1}{2}$
 $\tan \theta = -2$

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Q2 (-, +) tan -	Q1 (+, +) tan +
Q3 (-, -) tan +	Q4 (+, -) tan -

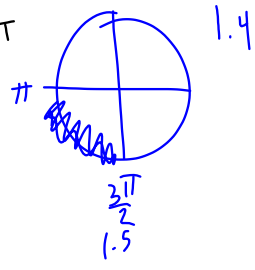
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Identify the sign of $\frac{7\pi}{5}$

a) cos -

b) sin -

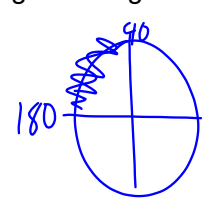
c) tan +



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What is the sign of the given angle?

cos 171° -

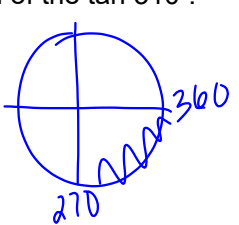


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What is the sign of the tan 310°?

-

+



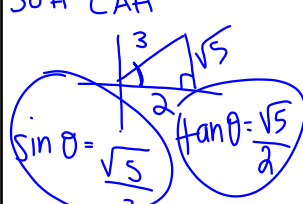
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Evaluate without using a calculator.

Ex 1) Find sin theta and tan theta

If cos theta = 2/3 and cot theta > 0

SOH CAH



$\sin \theta = \frac{\sqrt{5}}{3}$
 $\tan \theta = \frac{\sqrt{5}}{2}$

$3^2 = 2^2 + b^2$
 $9 = 4 + b^2$
 $5 = b^2$
 $b = \sqrt{5}$

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Ex 2) Find $\cos \theta$ and $\cot \theta$

If $\sin \theta = \frac{1}{4}$ and $\tan \theta < 0$

$\cos \theta = -\frac{\sqrt{15}}{4}$
 $\cot \theta = -\sqrt{15}$

If the tan is neg then cos or sin is neg. / Know Sin pos

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Homework 4.3 Part 1

4.3 Pg.381

#3,4,5,6,13,14,15,16,17,18,19,20,45,46,47,48

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