1.8 Exact Values

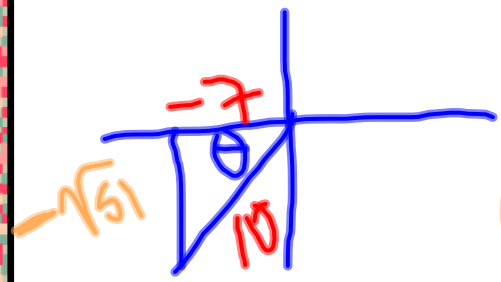
EQ: How do I calculate the exact value of a given trig funcon?

Warm-Up Friday

If θ terminates in Q III and $\cos\theta = \frac{-7}{10}$, find tanθ.

$\frac{ADJ}{HYP}$

$\frac{OPP}{ADJ}$



$(-7)^2 + b^2 = (10)^2$

$49 + b^2 = 100$

$\sqrt{b^2} = \sqrt{51}$

$\tan\theta = \frac{-\sqrt{51}}{-7}$

$\boxed{\frac{\sqrt{51}}{7}}$

About Me

1. What's your favorite color?
2. In elementary, what was your favorite game at recess?

1.8 Exact Values

EQ: How do I calculate the exact value of a given trig funcon?

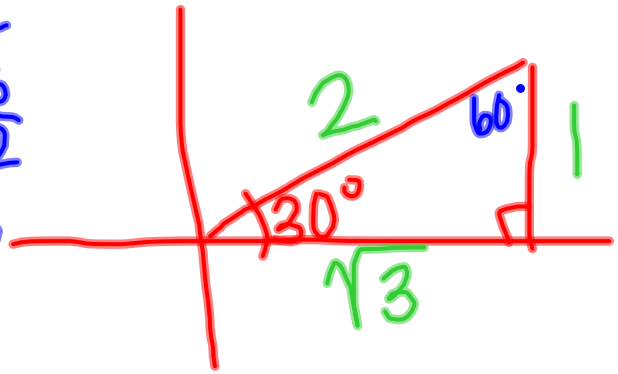
(RATIO)

$S\frac{O}{H}\ C\frac{A}{H}\ T\frac{O}{A}$

1. $\sin 30^\circ = \frac{1}{2}$

$\cos 30^\circ = \frac{\sqrt{3}}{2}$

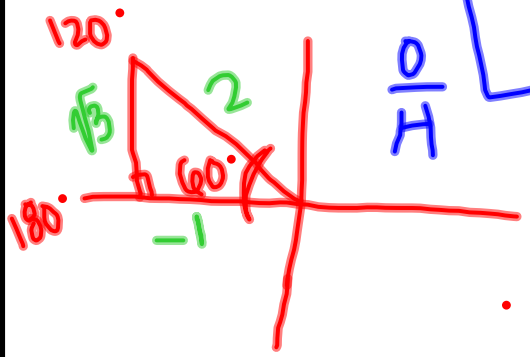
$\tan 30^\circ = \frac{1}{\sqrt{3}}$



30	60	90
x	x√3	2x
1	√3	2

(−,+)	(+,+)
(−,−)	(+,−)

2. $\sin 120^\circ = \boxed{\frac{\sqrt{3}}{2}}$

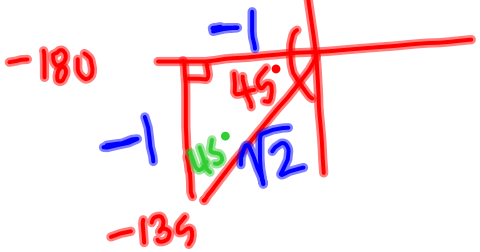


$\frac{O}{H}$

45	45	90
x	x	x√2
1	1	√2

3. $\cot(-135)^\circ$

$\tan\frac{O}{A} \rightarrow \cot\frac{A}{O}$

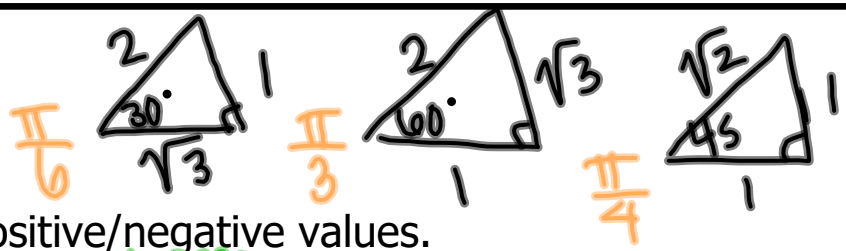


$\frac{-1}{-1} = \boxed{1}$

1.8 Exact Values

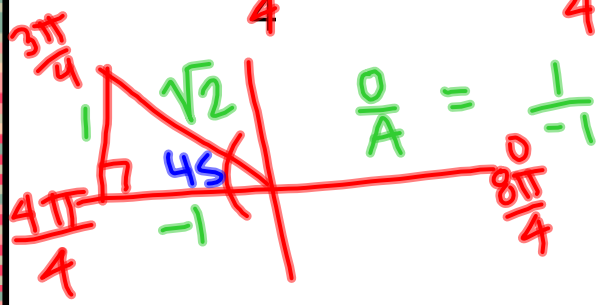
EQ: How do I calculate the exact value of a given trig funcon?

1. Draw the angle in correct quadrant.
2. Find reference angle.
3. Create a right triangle with the x-axis.
4. Fill in the special right triangle with positive/negative values.
5. Find the trig ratio for reference angle.



$S^O_H C^A_H T^O_A$ $C^H_O S^H_A C^A_O$

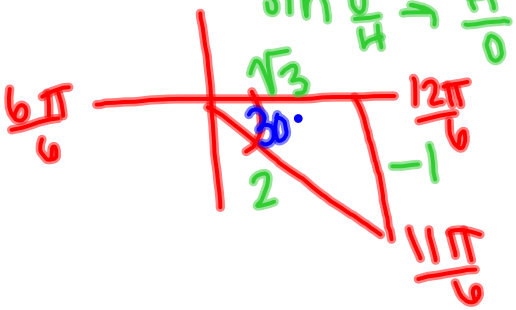
4. $\tan\frac{3\pi}{4}$ ref $\angle \frac{\pi}{4}$ (45°)



$\frac{O}{A} = \frac{1}{-1} = \boxed{-1}$

5. $\csc\frac{11\pi}{6}$ ref $\angle \frac{\pi}{6}$ 30°

$\sin \frac{O}{H} \rightarrow \frac{H}{O}$



$\frac{2}{-1} = \boxed{-2}$

EVENS

1.8 Exact Values on the Unit Circle **Name:**_____

These problems should be done by drawing a sketch of the appropriate special right triangle, not with a calculator!!

Find the six trig functions of the given angle:

1. 135°
2. $\frac{5\pi}{3}$
3. $\frac{7\pi}{6}$

Find the EXACT value of the given trig function:

4. $\tan 150^\circ$
5. $\sin 120^\circ$
6. $\sin 390^\circ$
7. $\csc 315^\circ$
8. $\cot \frac{2\pi}{3}$
9. $\sec \frac{7\pi}{6}$
10. $\cos \frac{7\pi}{4}$
11. $\sec \frac{5\pi}{3}$
12. $\tan \frac{3\pi}{4}$
13. $\csc \frac{5\pi}{3}$
14. $\tan \frac{11\pi}{6}$
15. $\csc \frac{4\pi}{3}$

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~~Closing~~

turn in weekly sheet!

$$\cos\frac{7\pi}{4}$$