Remind me to hit 'record.'

Odds and ends from 1.3? degrees, minutes, seconds?

You should set your e-mail in your WebAssign Profile to your D2L address.

It's just like your aims.edu address, except it's "online.aims.edu."

This makes things run better at my end, and hence improves the level of service to all of you.

I'll take a screenshot around 8:30 for attendance.

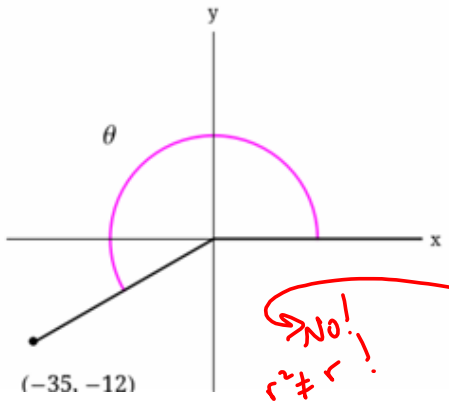
Right-angle trigonometry of ANY angle. That's 1.4

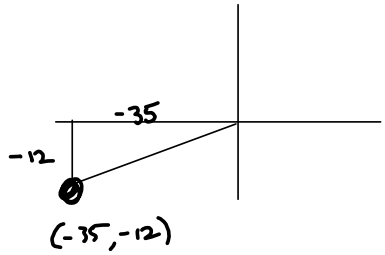
Solving trig equations.

5. 0/12 points

Find the exact values of the six trigonometric functions of each angle θ.

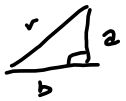
(a)





Pythagorus:

$r^2 = a^2 + b^2$



$= \sqrt{-35^2 + -12^2} =$

NO! $r^2 \neq r$!

Parens! Fernando & Xander.

$-35^2 = -1225$

$\sqrt{(-35)^2 + (-12)^2}$ is proper

$\sqrt{35^2 + 12^2}$ is OK

35
35
175
1050
1225

5 | 1225
5 | 245
7 | 49
7

$\sqrt{1225} = \sqrt{5^2 \cdot 7^2} = 5 \cdot 7$

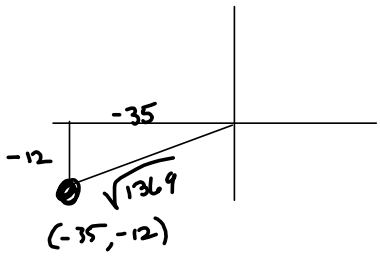
$= \sqrt{1225 + 144}$

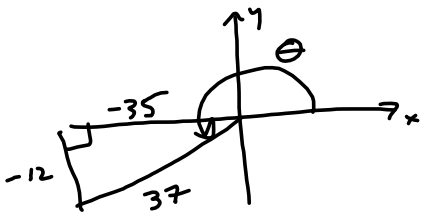
$r^2 = a^2 + b^2 = (-12)^2 + (-35)^2$

$= 144 + 1225 = 1369$

$r = \pm\sqrt{1369} \Rightarrow r = \sqrt{1369}$, since hypotenuse is always positive (until Polar Coordinates in Chapter 6).

By calculator, $\sqrt{1369} = 37$.



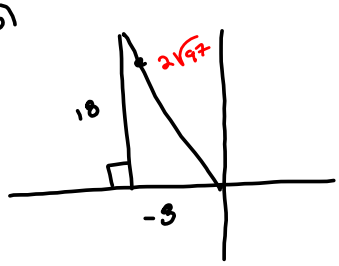


$\sin\theta = -\frac{12}{37}$ $\quad \csc\theta = -\frac{37}{12}$

$\cos\theta = -\frac{35}{37}$ $\quad \sec\theta = -\frac{37}{35}$

$\tan\theta = \frac{12}{35}$ $\quad \cot\theta = \frac{35}{12}$

(-8,18)



$r^2 = 8^2 + 18^2$

$= 64 + 324$

$= 388$

$r = +\sqrt{388} = 2\sqrt{97}$

2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37,

2 | 388
2 | 194
97

$\sqrt{388} = \sqrt{2^2 \cdot 97} = 2\sqrt{97}$

$2\sqrt{97}$

where is sine positive? QI & QII

+	+
−	−

sine: y

where is cosine positive? QI & QIV

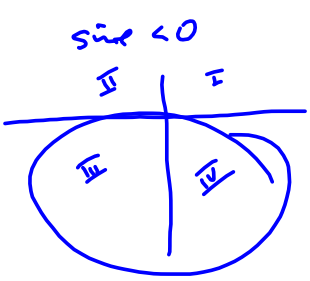
−	+
−	+

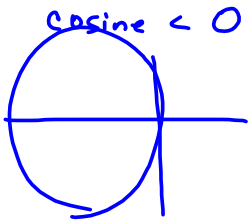
cosine: x

where's tangent positive? QI & QIII

(−,+) $\frac{-}{+} = -$	(+,+) $\frac{+}{+} = +$
(−,−) $\frac{-}{-} = +$	(+,−) $\frac{+}{-} = -$

tangent: $\frac{y}{x}$



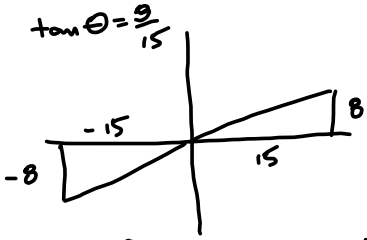


QIII is where they're both negative.

Find six trigs, if $\tan\theta = \frac{8}{15}$ & $\sin\theta > 0$

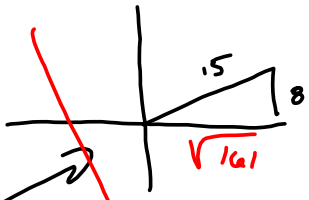
This is fixed 2 pages later.

$\tan\theta = \frac{8}{15}$



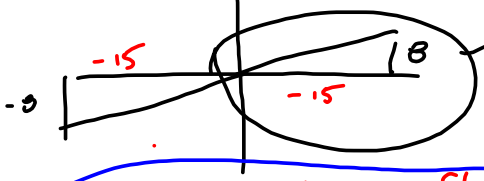
AND

$\sin\theta > 0$



THIS IS THE ONE.

$\tan\theta = \frac{8}{15}$ AND $\sin\theta > 0$



15's the hypotenuse, Steve, not the x.

You got this mixed-up

Pythagorus:

$r^2 = x^2 + b^2$

$15^2 = 8^2 + b^2$

$b^2 = 15^2 - 8^2$

$= 225 - 64 = 161$

$\Rightarrow b = \pm\sqrt{161}$

We're in QI, so

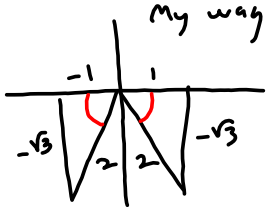
$b > 0$, so $b = \sqrt{161}$

You got x & r mixed-up

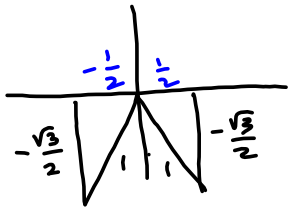
Find all solutions to

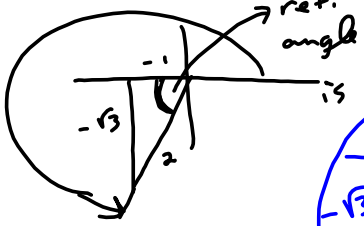
$\sin\theta = -\frac{\sqrt{3}}{2}$

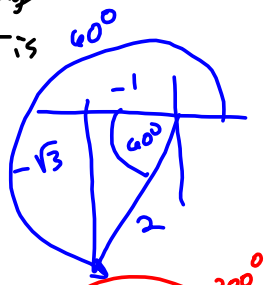
My way



Book Way

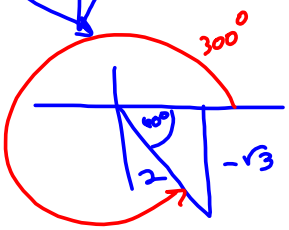




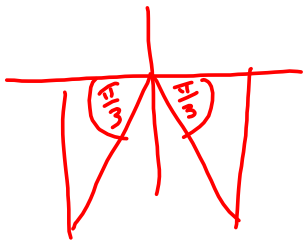


ADD 180° to it, so

$60° + 180° = 240° = \theta$



$360° - 60° = 300° = \theta$



$\pi + \frac{\pi}{3} = \frac{4\pi}{3}$

$2\pi - \frac{\pi}{3} = \frac{5\pi}{3}$

$\theta \in \left\{ \frac{4\pi}{3}, \frac{5\pi}{3} \right\}$

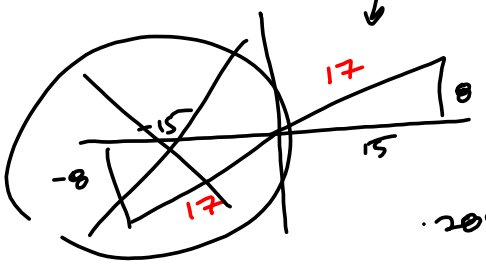
$A \in B$

A is an element of the set B.

A is a member of the B club.

Fix your mistakes, Steve:

$\tan\theta = \frac{8}{15}$, $\sin\theta > 0$



$r^2 = 8^2 + 15^2$

$= 64 + 225$

$= 289 = 17^2$

2, 3, 5, 7, 11, 13, 17,

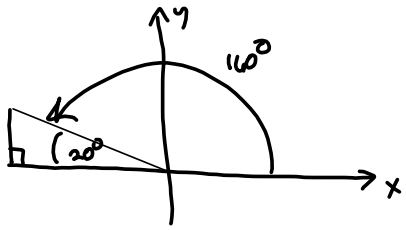
· 289

$\sin\theta = \frac{8}{17}$ $\quad \csc\theta = \frac{17}{8}$

$\cos\theta = \frac{15}{17}$ $\quad \sec\theta = \frac{17}{15}$

$\tan\theta = \frac{8}{15}$ $\quad \cot\theta = \frac{15}{8}$

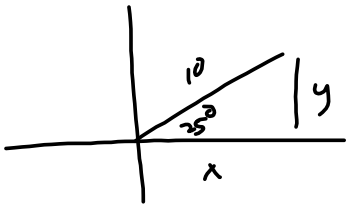
$\theta = 160^\circ$ has reference angle 20°



Drop perpendicular to x-axis to form a triangle:

$\theta' =$ ref. angle $= 20^\circ$

1.3#2:



$\frac{x}{10} = \cos(25^\circ) \Rightarrow$

$x = 10\cos(25^\circ)$