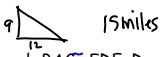


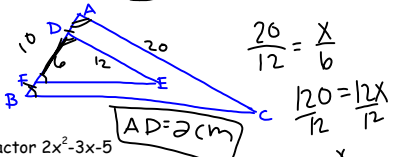
ACT PREP #3

1. A boat departs Port Isabelle, Texas traveling to an oil rig. The oil rig is located 9 miles East and 12 miles North of the boat's departure point. About how many miles is the oil rig from the departure point?



15 miles

2. In the figure below,  $\angle ABC \cong \angle DFE$ , and  $\angle BAC \cong \angle FDE$ . D and F are on AB,  $AD = FB$ , distances are in centimeters are as shown. What is the length of  $AD$  in centimeters?



$AD = x$

$\frac{20}{12} = \frac{x}{6}$

$\frac{120}{12} = \frac{12x}{12}$

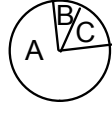
$10 = x$

3. Factor  $2x^2 - 3x - 5$

$(2x-5)(x+1)$

Feb 8-4:04 PM

4. The distribution of Jamal's high school grades by percentage of course credits is given in the circle graph below. What is Jamal's grade point average if each A is worth 4 points, each B, 3 points; and C, 2 points?




A's 70%  $.70 \cdot 4$

B's 20%  $.20 \cdot 3$

C's 10%  $.10 \cdot 2$

3.6

5. What is the difference between 1.8 and 1.08? (Note: A bar indicates a digit pattern that is repeated)



Feb 8-4:07 PM

Homework Questions...

④  $\sqrt{-(-9)^2}$


$\sqrt{-81}$   $\sqrt{-1} \cdot \sqrt{81}$

$9i$   $9i$

100...30 \$ 70.20

-14

\$ 56



$B = (180 - x)^\circ$

Feb 8-4:08 PM

Calendar Math


Sketch the result of each shape rotating around the given axis.

Around the y-axis: right cylinder

Around the x-axis: right cylinder w/ a hole donut

Triangle: Around the x-axis: cone

Parabola: Around the y-axis: bowl w/ a lid



Feb 8-4:08 PM

Triangle with a curve:

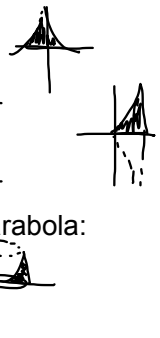
Around the y-axis: clown tent

Around the x-axis: Sideways clown tent

Opposite shade of the parabola:

Around the y-axis: empty bowl

Circle: Around the y-axis: sphere



Feb 8-4:11 PM

7.2 Using the Unit Circle to find Exact Trig Values

SOH-CAH-TOA

$\cos \theta = \frac{\text{adj}}{\text{hyp}}$   $\sec \theta = \frac{\text{hyp}}{\text{adj}}$

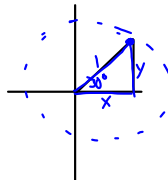
$\sin \theta = \frac{\text{opp}}{\text{hyp}}$   $\csc \theta = \frac{\text{hyp}}{\text{opp}}$

$\tan \theta = \frac{\text{opp}}{\text{adj}}$   $\cot \theta = \frac{\text{adj}}{\text{opp}}$

} reciprocal

Look at this on the x and y axis

Consider the unit circle that has the radius of 1 unit



Feb 8-4:13 PM

$\cos \theta = x$        $\sec \theta = \text{reciprocal of } x \text{ or } \frac{1}{x}$   
 $\sin \theta = y$        $\csc \theta = \text{reciprocal of } y \text{ or } \frac{1}{y}$   
 $\tan \theta = \frac{y}{x}$        $\cot \theta = \text{reciprocal of } \tan \text{ or } \frac{x}{y}$

$\cos \frac{5\pi}{6}$   
 What is the x-value at  $\frac{5\pi}{6}$ ?  
 $\boxed{-\frac{\sqrt{3}}{2}}$

$\sin 90^\circ =$   
 What is the y-value at  $90^\circ$ ?  
 $\boxed{1}$

Feb 8-4:19 PM

$\tan \frac{\pi}{6}$   
 What is  $\frac{y}{x}$  for  $\frac{\pi}{6}$ ?  $\frac{\frac{1}{2}}{\frac{\sqrt{3}}{2}}$   $\frac{1}{\sqrt{3}}$

$(\frac{\sqrt{3}}{2}, \frac{1}{2})$   
 $x$        $y$   
 $\frac{1}{2} \div \frac{\sqrt{3}}{2} = \frac{1}{\sqrt{3}}$   
 $\frac{1}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{3}}{3}$

Feb 12-9:26 AM

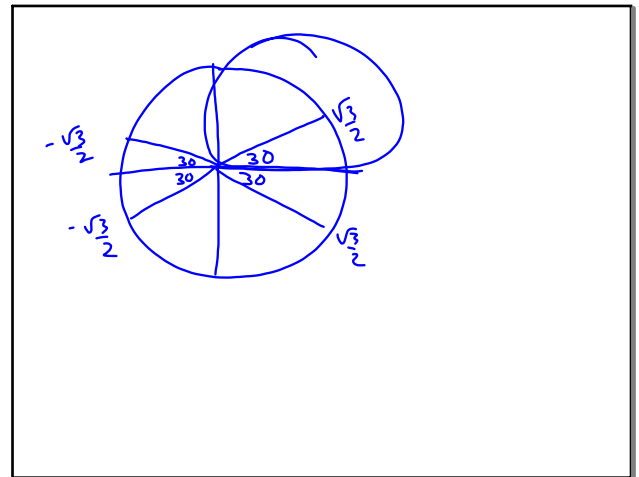
Example:

$\sec \frac{5\pi}{6} = \text{reciprocal of } x = \frac{-\sqrt{3}}{2} \rightarrow \frac{2\sqrt{3}}{\sqrt{3} \cdot \sqrt{3}} = \frac{2\sqrt{3}}{3}$

$\tan 60^\circ = \frac{y}{x} = \frac{\sqrt{3}}{1} = \boxed{\sqrt{3}}$   
 $120^\circ$   
 $240^\circ$

$\csc 0^\circ = \text{reciprocal of } y = \frac{0}{1} = \frac{1}{0} = \emptyset$

Feb 8-4:21 PM



Feb 12-9:32 AM

(25)  $\sin 180^\circ$   
 $\boxed{0}$

(37) neither

(38) positive

Feb 8-4:22 PM

(52)  $\sec \frac{\pi}{4}$  reciprocal of  $x$   
 $\frac{\sqrt{2}}{2} \rightarrow \frac{2 \cdot \sqrt{2}}{\sqrt{2} \cdot \sqrt{2}} = \frac{2\sqrt{2}}{2} = \boxed{\sqrt{2}}$

(62)  $\tan \frac{3\pi}{4}$   $\frac{y}{x} = \frac{\sqrt{2}}{-\sqrt{2}} = \boxed{-1}$

Feb 12-9:41 AM