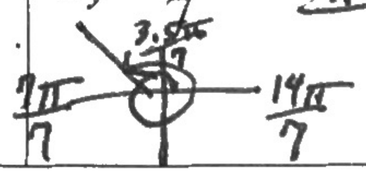
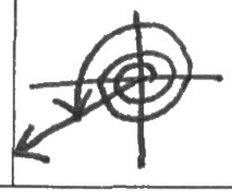
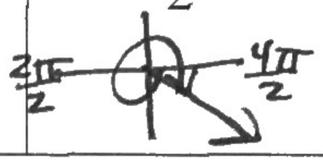
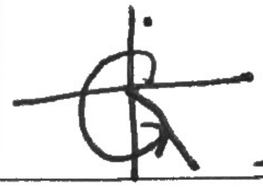
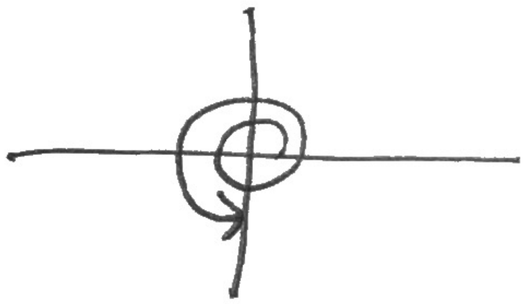
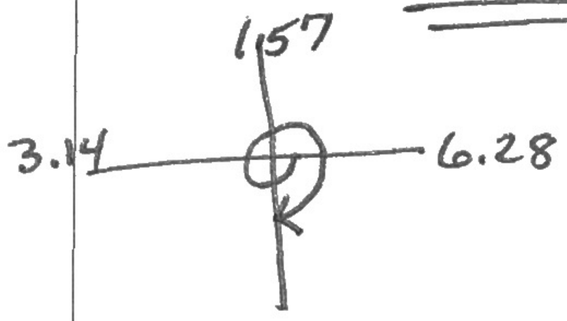
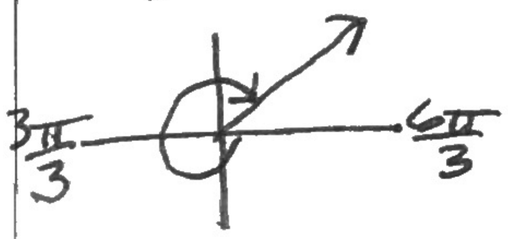
Key

Pre-Calculus Test 1.2 Trig Ratios STATION 1 CALCULATOR

Determine the quadrant or ± axis where the angle terminates to the given angle.

1) $480°$  II	2) $\frac{18\pi}{7}$  II	3) $910°$  III	4) $\frac{-5\pi}{2}$  IV	5) $271°$  IV

Sketch the given angle.

6) $630°$ 	7) -7.85 radians !! 	8. $\frac{-5\pi}{3}$ 

Determine which angle(s), if any, are NOT co-terminal to θ.

9. $\theta = 215°$

A) $-145°$ B) $-865°$ C) $935°$

D) $-215°$ E) $145°$ F) $-35°$

$\theta = 215 + 360N$

10. $\theta = \frac{8\pi}{9}$ 

A) $\frac{17\pi}{9}$ B) $-\frac{64\pi}{9}$ C) $\frac{\pi}{9}$

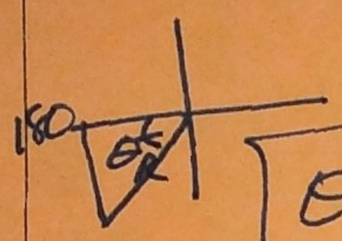
D) $\frac{-10\pi}{9}$ E) $\frac{44\pi}{9}$ F) $\frac{18\pi}{9}$

$\frac{8\pi}{9} + \left(\frac{18\pi}{9}\right)N$

Pre-Calculus Test 1.2 Trig Ratios STATION 3 CALCULATOR

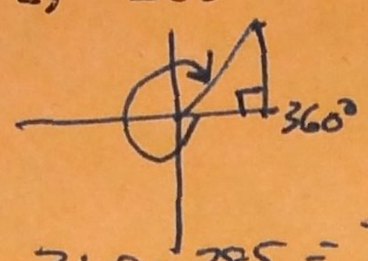
Find the reference angle. Keep degrees in degrees and radians in radians!

1) $255°$



$\boxed{\theta_R = 75°}$

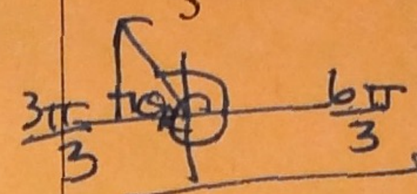
2) $-285°$



$360 - 285 = 75$

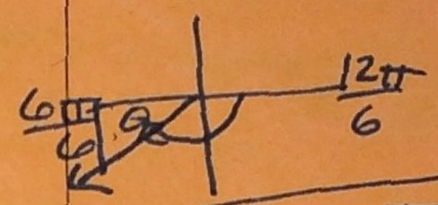
$\boxed{\theta_R = 75°}$

3) $\frac{8\pi}{3}$



$\boxed{\theta_R = \frac{\pi}{3}}$

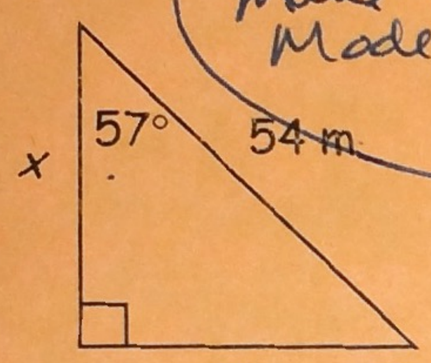
4) $-\frac{5\pi}{6}$



$\boxed{\theta_R = \frac{\pi}{6}}$

Find x in each. Show all work, including calculator ready. Round to the nearest tenth.

5.



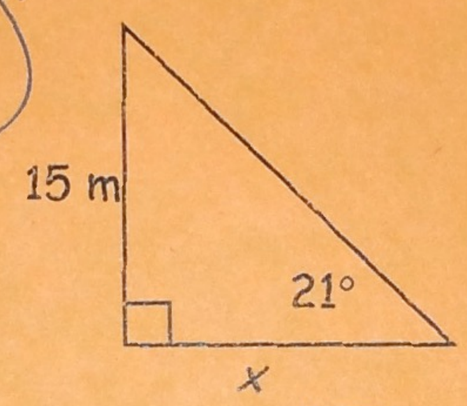
Make Sure, Mode is in Degree

$\cos 57° = \frac{x}{54}$

$x = 54 \cos 57$

$\boxed{x \approx 29.4}$

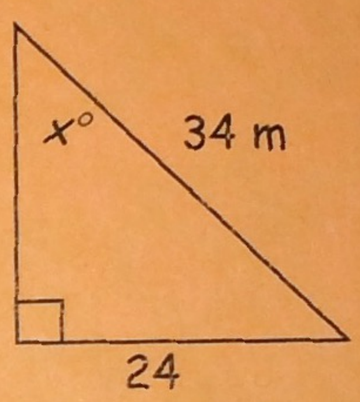
6.



$\tan 21 = \frac{15}{x}$

$x = \frac{15}{\tan 21} \approx \boxed{39.1 \text{ m}}$

7.



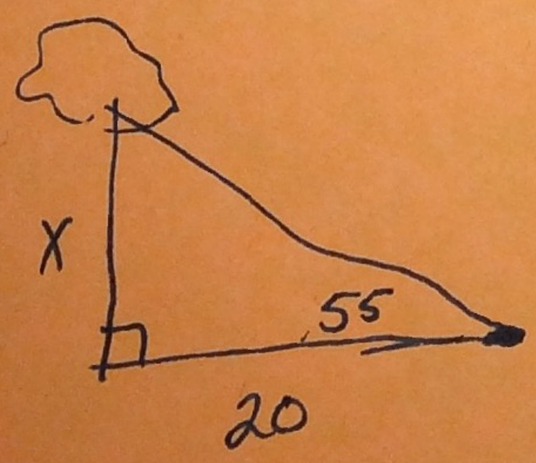
$\sin x = \frac{24}{34}$

$x = \sin^{-1}\left(\frac{24}{34}\right)$

$\boxed{x \approx 44.9°}$

Sketch a figure for each, write the equation and solve.

8. Todd and Mary want to estimate the height of the pine tree in their back yard. They measure the shadow of the tree and it is 20 ft. The angle of elevation from the tip of the tree shadow to the top of the tree is about 55 degrees. Assuming the yard is flat (horizontally) and the tree is growing straight up, approximately how tall is the pine tree?

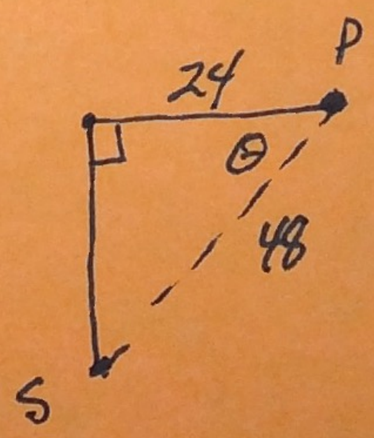


$\tan 55 = \frac{x}{20}$

$x = 20 \tan 55$

$\boxed{x \approx 28.6 \text{ ft}}$

9. A cruise ship sailed due west 24 miles from port, before turning south. When the cruise ship became disabled and the crew radioed for help, the rescue boat found that the fasted route from the port, covered a distance of 48 miles. Find the angle at which the rescue boat should travel to the aide the cruise ship.



$\cos\theta = \frac{24}{48}$

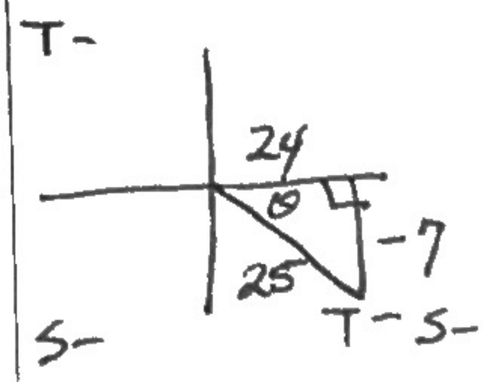
$\theta = \cos^{-1}\left(\frac{24}{48}\right)$

$\boxed{\theta = 60°}$

Pre-Calculus Test 1.2 Trig Ratios STATION 4 NO CALCULATOR

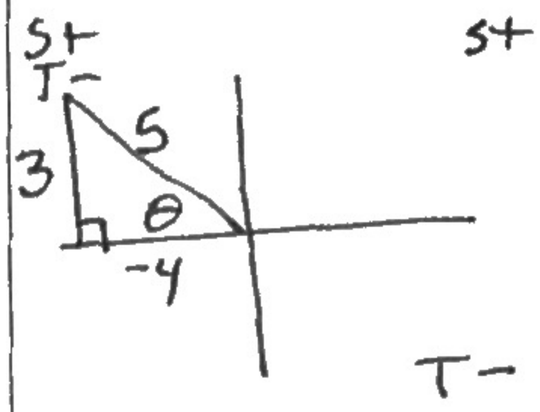
Find each trig RATIO given the specific information. Hint: A) Sketch a GRAPH in the correct quadrant.B) Use SOH CAH TOA to answer each question.

1. Find $\sec\theta$, given $\tan\theta = \frac{-7}{24}$ and $\sin\theta < 0$.



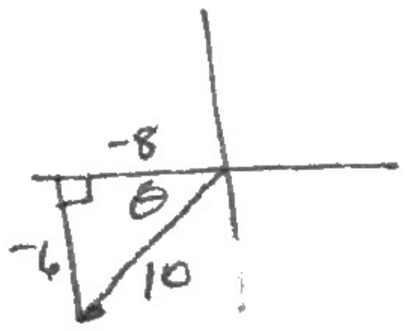
$\boxed{\sec\theta = \frac{25}{24}}$

2. Find $\sin\theta$, given $\cot\theta = \frac{-4}{3}$ and $\csc\theta > 0$.



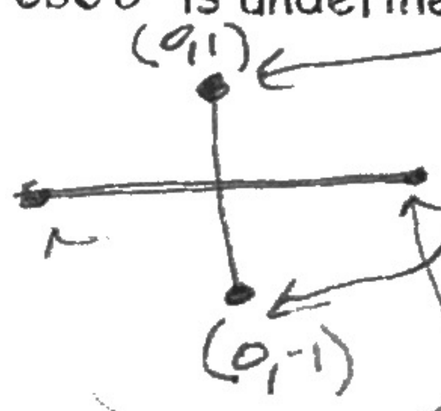
$\boxed{\sin\theta = \frac{3}{5}}$

3. Find $\csc\theta$, given the point (-8, -6) lies on the terminal side of the angle.



$\boxed{\csc\theta = \frac{-3}{5}}$

4. Find $\sec\theta$, given $\tan\theta$ is undefined and $\csc\theta$ is undefined.



y-axis

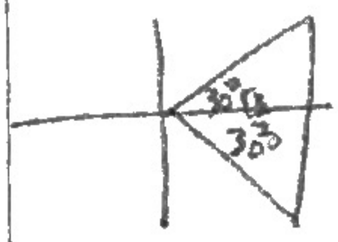
$\csc\theta$ = und.

$\sin\theta = 0$

NO Solution

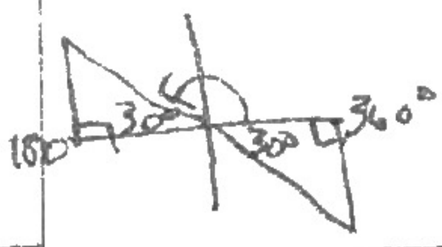
Find each angle(s) given $0° \le \theta \le 360°$. Sketch a figure, Find the reference angle, and determine the quadrant(s).

5. $\cos\theta = \frac{\sqrt{3}}{2}$



$\boxed{\theta = 30°, 330°}$

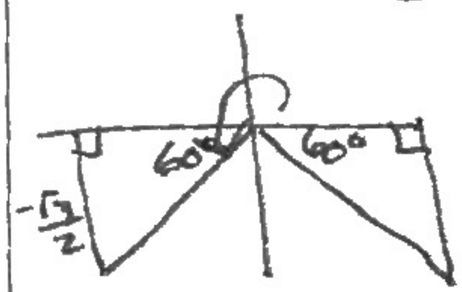
6. $\tan\theta = -\frac{\sqrt{3}}{3}$



$\boxed{\theta = 150°, 330°}$

7. $\csc\theta = -\frac{2\sqrt{3}}{3}$

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

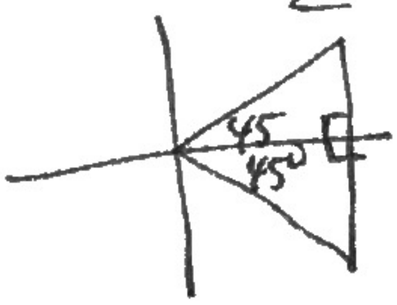


$\boxed{\theta = 240°, 300°}$

Find each angle(s) given $0 \le \theta \le 2\pi$. Sketch a figure, Find the reference angle, and determine the quadrant(s).

8. $\sec\theta = \sqrt{2}$

$\cos\theta = \frac{\sqrt{2}}{2}$



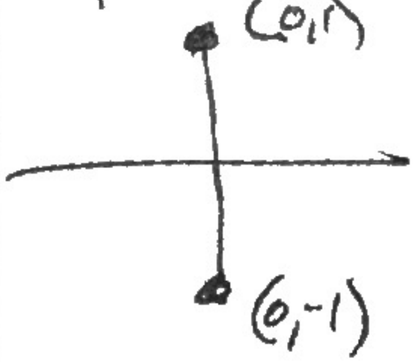
$\boxed{\theta = \cancel{45°}, \cancel{315°}}$

II

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

9. $\cot\theta = 0$

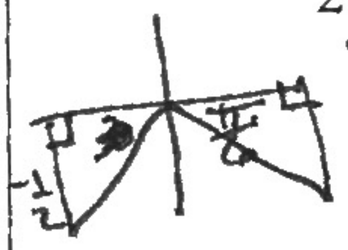
$\tan\theta$ = und.



$\boxed{\cancel{\theta = 90°, 270°}}$

$\frac{\pi}{2}, \frac{3\pi}{2}$

10. $\sin\theta = -\frac{1}{2}$



$\boxed{\frac{7\pi}{6}, \frac{11\pi}{6}}$

Pre-Calculus Test 1.2 Trig Ratios STATION 5 NO CALCULATOR

Complete the puzzle by placing the letter of the correct answer above the question number.

Why did I divide sin by tan?

J	U	S	T	C	O	S
1	2	3	4	5	6	7

Give the quadrant or angle measure(s) for each. $0° \le \theta \le 360°$.

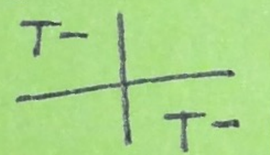
1. $\tan\theta < 0$

W) II

T) III

S) I & III

J) II & IV



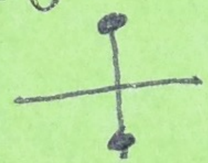
2. $\cos\theta = 0$

R) 90°

E) 180°

O) 90° and 180°

U) 90° and 270°



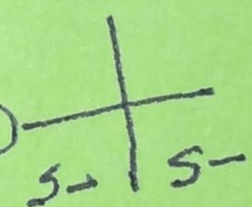
3. $\csc\theta < 0$

Y) II & III

S) III & IV

R) II & IV

O) III



4. tan is undefined

N) 90° and 180°

T) 90° and 270°

A) 90°

R) 180°

5. $\cot\theta > 0$

C) I & III

G) II & IV

N) I & IV

Y) II & III

6. $\sin\theta = 1$

T) 0°

O) 90°

N) 180°

P) 90° and 270°

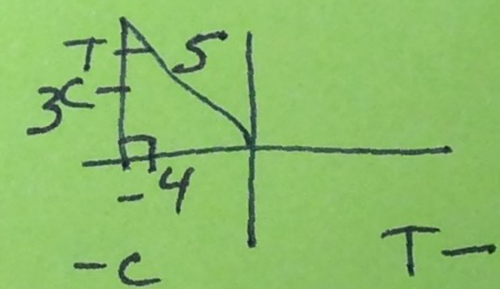
7. $\sec\theta = -\frac{5}{4}$ and $\tan\theta < 0$

A) I

S) II

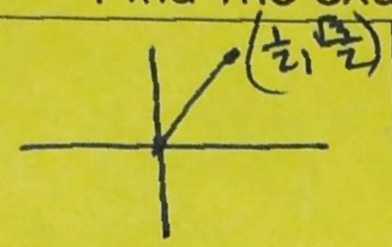
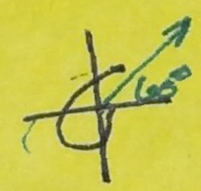
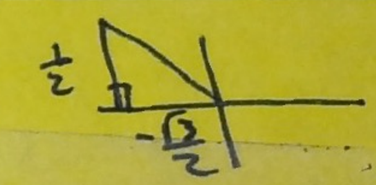
O) III

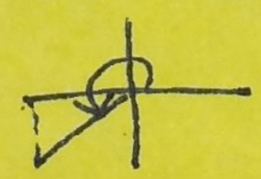
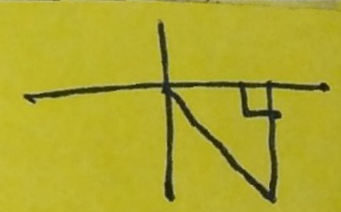
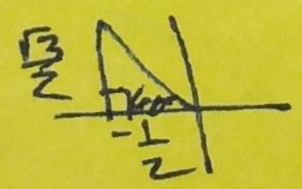
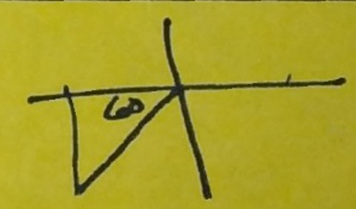
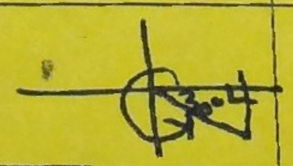
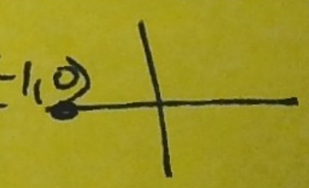
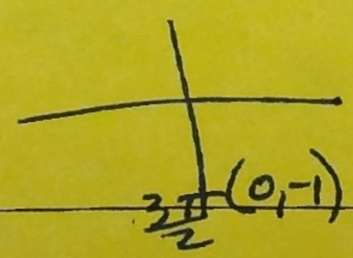
C) IV



Pre-Calculus Test 1.2 Trig Ratios STATION 6 NO CALCULATOR

Non-Calculator Unit Circle. Find the exact value for each.

1. $\cos 60° =$ $\frac{1}{2}$ 	2. $\sin \frac{\pi}{4} =$ $\frac{\sqrt{2}}{2}$
3. $\sec 45° =$ $\sqrt{2}$	4. $\cos 225° =$ $-\frac{\sqrt{2}}{2}$
5. $\csc(-300°) =$ $\frac{2\sqrt{3}}{3}$ 	6. $\sec 150° =$ $-\frac{2\sqrt{3}}{3}$ 

7. $\cot \frac{7\pi}{6} =$ $\sqrt{3}$ 	8. $\tan \frac{5\pi}{3} =$ $-\sqrt{3}$ 
9. $\csc \frac{2\pi}{3} =$ $\frac{2\sqrt{3}}{3}$ 	10. $\cot(-120°) =$ $\frac{\sqrt{3}}{3}$ 
11. $\sin 330° =$ $-\frac{1}{2}$ 	12. $\cos 180° =$ -1 
13. $\sec \frac{3\pi}{2} =$ und. 	14. $\csc \frac{\pi}{2} =$ 1