

Trig Practice Quiz

1) Determine one positive and one negative angle co-terminal to -225° .

One Positive: $-225^\circ + 360^\circ = 135^\circ$ One negative: $-225^\circ - 360^\circ = -585^\circ$

2) Determine one positive and one negative angle co-terminal to $\frac{5\pi}{8}$.

One Positive: $\frac{5\pi}{8} + 2\pi = \frac{5\pi}{8} + \frac{2\pi \cdot 8}{8} = \frac{5\pi}{8} + \frac{16\pi}{8} = \frac{21\pi}{8}$ One negative: $\frac{5\pi}{8} - 2\pi = \frac{5\pi}{8} - \frac{16\pi}{8} = \frac{-11\pi}{8}$

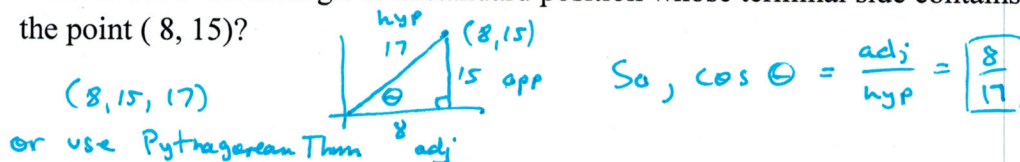
3) Change 320° to radians.

$320^\circ \cdot \frac{\pi \text{ rad}}{180^\circ} = \frac{320\pi \text{ rad}}{180} = \frac{16\pi \text{ rad}}{9}$ or $\frac{16\pi}{9}$

4) Change the radian measure $\frac{7\pi}{9}$ to degrees.

$\frac{7\pi \text{ rad}}{9} \cdot \frac{180^\circ}{\pi \text{ rad}} = \frac{7 \cdot 180^\circ}{9} = 7 \cdot 20^\circ = 140^\circ$

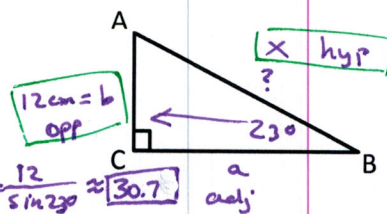
5) What is $\cos \theta$ for an angle θ in standard position whose terminal side contains the point $(8, 15)$?



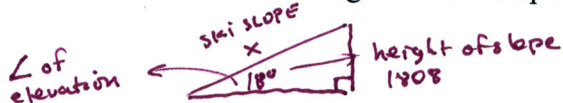
Write a trig equation and solve to answer the following questions. Show all steps. Round to the nearest tenth.

6) Given $\angle B = 23^\circ$ and $b = 12 \text{ cm}$, find the length of \overline{AB} .

$\sin 23^\circ = \frac{12}{x} \Rightarrow \frac{\sin 23^\circ}{1} \times \frac{12}{x}$
 $x \cdot \sin 23^\circ = 12$
 $x = \frac{12}{\sin 23^\circ} \approx 30.7$



7) A ski slope at a mountain has an angle of elevation of 18° . The height of the slope is 1808 feet. How long is the ski slope? Draw a diagram.



$\sin 18^\circ = \frac{1808}{x}$
 $x \cdot \sin 18^\circ = 1808$

$x = \frac{1808}{\sin 18^\circ} = 5850.8$

\therefore The ski slope is 5850.8 ft

Write a trig equation and solve to answer the following questions. Show all steps.

8) You are standing at the end of the shadow of a giant sequoia 150 feet from its base. The angle of elevation of the sun is 43° . How tall is the tree? Draw a diagram.



$\tan 43^\circ = \frac{x}{150}$
 $150 \cdot \tan 43^\circ = x$

$x \approx 139.9$

\therefore The tree is 139.9 ft tall.

9) Round to the nearest degree. Find the value of x given: $\tan x = 0.3386$

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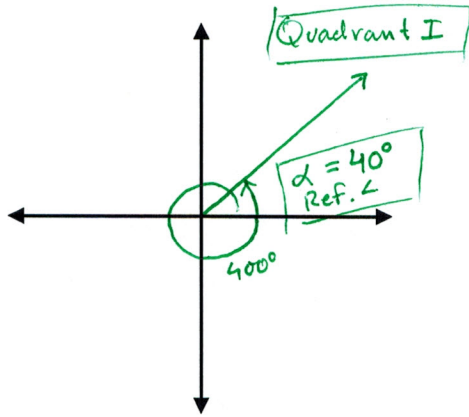
$\tan^{-1}(\tan x) = \tan^{-1}(0.3386)$

$x = 19^\circ$

Infinite # of answers possible

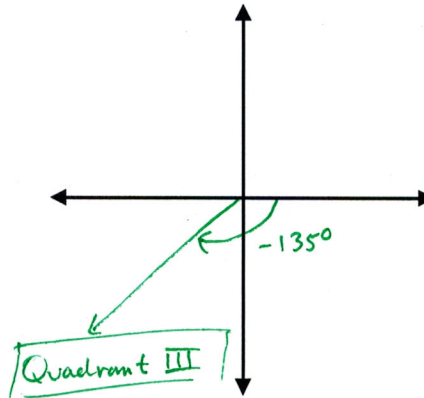
Draw an angle of rotation. State which quadrant the terminal ray lands. State the reference angle.

10) 400°



Leave answer in **degrees**.

11) $\frac{-3\pi}{4} \Leftrightarrow -135^\circ$



Leave answer in **radians**.

$$\begin{array}{r} -135^\circ \\ +360^\circ \\ \hline 225^\circ \end{array}$$

$$\alpha = 225^\circ - 180^\circ = 45^\circ$$

So $\alpha = \frac{\pi}{4}$ radians Ref. \angle

12) Suppose θ is an acute angle of a right triangle. If θ is in Quadrant I and $\cos \theta = \frac{8}{17}$, find the values of the remaining five trig functions.

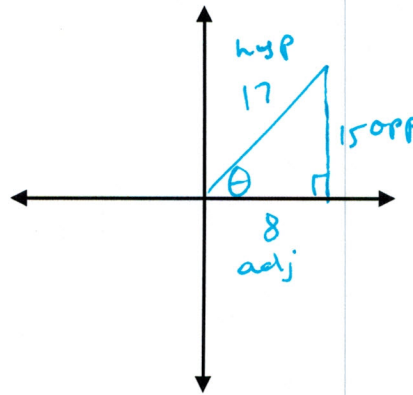
$$\sin \theta = \frac{\text{opp}}{\text{hyp}} = \frac{15}{17}$$

$$\tan \theta = \frac{\text{opp}}{\text{adj}} = \frac{15}{8}$$

$$\csc \theta = \frac{17}{15}$$

$$\sec \theta = \frac{17}{8}$$

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



$$\cos \theta = \frac{8 \text{ adj}}{17 \text{ hyp}}$$

Find the exact values of $\sin \theta$, $\cos \theta$, and $\tan \theta$ if the terminal side of θ in the standard position contains the given point. Draw and label a diagram.

13) $P(-9, -12)$



$$\sin \theta = \frac{-12}{15} = -\frac{4}{5}$$

$$\cos \theta = \frac{-9}{15} = -\frac{3}{5}$$

$$\tan \theta = \frac{-12}{-9} = \frac{4}{3}$$

$$r = \sqrt{(-9)^2 + (-12)^2} = 15$$

14) $P(-5, 0)$



$$\sin \theta = \frac{y}{r} = \frac{0}{5} = 0$$

$$\cos \theta = \frac{x}{r} = \frac{-5}{5} = -1$$

$$\tan \theta = \frac{y}{x} = \frac{0}{-5} = 0$$

$$r = \sqrt{(-5)^2 + 0^2} = 5$$