

Trig Basics

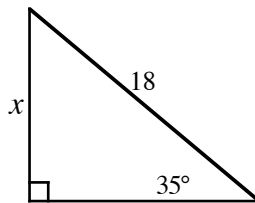
Part I--CALCULATOR ALLOWED

1. $\sin\left(\cos^{-1}\frac{3}{4}\right) =$

- a. 0.438 b. 0.661 c. 0.821
d. 1.3238 e. 1.528
-

2. The magnitude of $\vec{v} = 7\vec{i} - \sqrt{6}\vec{j}$ is

- a. $\sqrt{55}$ b. 1 c. 13 d. 85 e. $\sqrt{85}$
-

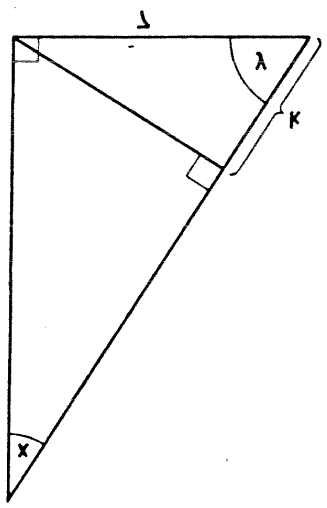
3. In the triangle shown, which of the following best approximates x ?

- a. 10.32 b. 25.71 c. 12.60
d. 14.74 e. none of these
-

4. If $f(x,y) = \tan x + \tan y$ and $g(x,y) = 1 - \tan x \cdot \tan y$, then, in radians, $\frac{g(2,1)}{f(2,1)} =$

- a. -7.02 b. -0.14 c. 0
 d. 0.957 e. 9.971

5. In the figure below, $\tan y =$



- a. $\frac{7}{k}$ b. $\frac{k}{7}$ c. $\frac{7-k}{7}$ d. $\frac{\sqrt{49-k^2}}{7}$ e. $\frac{\sqrt{49-k^2}}{k}$

~~6. An incline makes an angle of 60° with level ground. How many feet up the incline must one go in order to rise 20 feet above the ground?~~

- ~~a. 10 b. $10\sqrt{3}$ c. $\frac{20}{\sqrt{3}}$ d. 40 e. $40\sqrt{3}$~~

7. What is the measure of an angle whose sine is twice the cosine of 60° ?

- a. 30° b. 60° c. 90°
d. 120° e. No such angle
-

Trig Basics

Part III--CALCULATOR ALLOWED

1. $(12, -13)$ is on the terminal side of A . Find the six exact trig values:

$$\sin A =$$

$$\csc A =$$

$$\cos A =$$

$$\sec A =$$

$$\tan A =$$

$$\cot A =$$

2. If $\cos B = -\frac{5}{8}$ in QII, find the other five exact trig values:

$$\sin B =$$

$$\csc B =$$

$$\cos B = -\frac{5}{8}$$

$$\sec B =$$

$$\tan B =$$

$$\cot B =$$

3. What are the approximate values, in degrees of A and B (from #1 and #2)?

$$A = \underline{\hspace{2cm}}$$

$$B = \underline{\hspace{2cm}}$$

4. (a) Find the approximate values of:

$$\cos^{-1} 0.28 =$$

$$\sin^{-1} 0.136 =$$

$$\tan^{-1} 2.34 =$$

$$\sec^{-1} 0.717 =$$

$$\csc^{-1} 15.29 =$$

$$\cot^{-1} 2 =$$

(b) Find the approximate values (in degrees) of:

$$\cos^{-1} 1.705 = \left\{ \right.$$

$$\sin^{-1} (-0.516) = \left\{ \right.$$

$$\tan^{-1} 0.758 = \left\{ \right.$$

$$\sec^{-1} 2.982 = \left\{ \right.$$

$$\csc^{-1} -1.362 = \left\{ \right.$$

5. A boat sails 48 mph at a bearing of 303° . The current flows 8 mph at 34° . Find the magnitude and bearing of the resultant vector.

6. Identify the quadrant and reference angle of :

a) 732° Q _____ $\theta_{ref} =$

b) -932° Q _____ $\theta_{ref} =$

c) 1345° Q _____ $\theta_{ref} =$

d) -632° Q _____ $\theta_{ref} =$

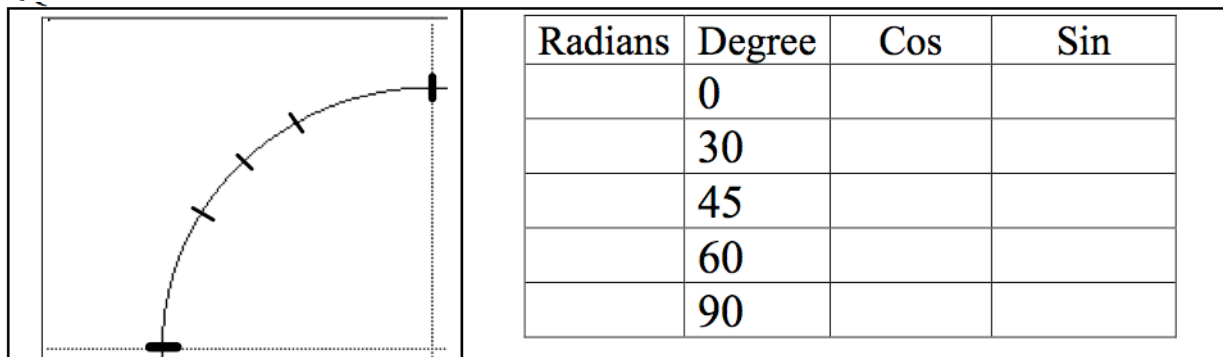
Trig Basics

Part III

NO CALCULATOR ALLOWED

Round to 3 decimal places. Show all work

1. Fill in the coordinates from QII of the Unit Circle and the Table Values from QI.



2. Find the exact value of the following:

(a) $5 \sin^2 \frac{7\pi}{4} - 2 \cos^2 \frac{7\pi}{3}$

(b) $\sec \frac{2\pi}{3} \tan \frac{7\pi}{6} + \cot \frac{11\pi}{6} \csc \frac{5\pi}{3}$

(c) $\sin\left(\frac{7\pi}{4}\right) - 3 \cos\left(\frac{\pi}{2}\right) + \tan\left(\frac{11\pi}{6}\right)$