

VALENCIA COMMUNITY COLLEGE
College Trigonometry

SOLUTIONS

Name:

Quiz-1

Date:

***** Show all your work for full credit *****

1) Use a calculator to find each trigonometric ratio to four decimal places:

a) $\sin 27^{\circ} 30' 45''$
 $= 0.4619$

b) $\cot 23.4^{\circ}$
 $= \frac{1}{\tan(23.4^{\circ})} = 2.3109$

c) $\sec 34.23^{\circ}$
 $= \frac{1}{\cos(34.23^{\circ})} = 1.2095$

d) $\tan 32^{\circ} 45' 25''$
 $= 0.6434$

2) Find each acute angle θ to the accuracy indicated.

a) $\tan \theta = 3.24$ (to the nearest minutes). $\theta = 72^{\circ} 50' 51''$

b) $\sec \theta = 1.45$ (to two decimal places).

$\theta = \cos^{-1}\left(\frac{1}{1.45}\right) = 46.40^{\circ}$

c) $\csc \theta = 2.325$ (to the nearest seconds).

$\theta = \sin^{-1}\left(\frac{1}{2.325}\right) = 25^{\circ} 28' 28''$

3) A large airplane (plane A) flying at 40,000 ft sights a smaller plane (plane B) travelling at an altitude of 35,000 ft. The angle of depression is 40° . What is the line-of-sight distance between the two planes?

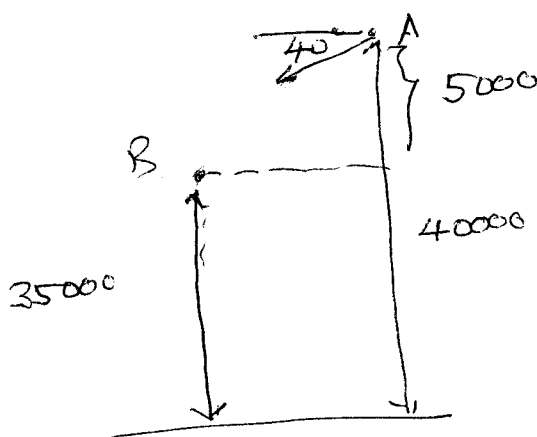


Diagram of a right triangle with hypotenuse x , vertical side 5000, and angle 40° .

$$\sin 40^{\circ} = \frac{5000}{x}$$

$$\Rightarrow x = \frac{5000}{\sin 40^{\circ}}$$

$$\Rightarrow x = \underline{\underline{7778.62 \text{ ft}}}$$