

## TRIGONOMETRY

## Chapter 2 Review Problems

Find the exact values of each **without** the calculator.

1.  $2\cot 45^\circ$
2.  $3\sec 60^\circ$
3. Evaluate  $\sin 27^\circ 40'$  with the calculator

Use your calculator to find  $\theta$  if  $\theta$  is an acute angle and:

4.  $\sin \theta = .8290$
5.  $\sec \theta = 9.5668$
6. In a rt. triangle ABC,  $C = 90^\circ$ ,  $a = 225$  and  $c = 354$ . Solve the triangle.
7. In a rt. triangle ABC,  $C = 90^\circ$ ,  $A = 57^\circ 10'$ , and  $a = 37.8$ . Solve the triangle.
8. A woman standing 42.5 feet from a building notices that the angle of elevation to the top of the building is  $52.2^\circ$ . Find the height of the building.
9. A man walks with a bearing of  $N 31^\circ 30' W$  for 12 miles. How far west and how far north did he walk?

Give the exact value without using your calculator.

10.  $\cos 45^\circ$
11.  $\cot 30^\circ$
12.  $\sin (60^\circ)$
13.  $\sec (30^\circ)$
14. If vector  $\mathbf{V}$  has a magnitude of 5.0 and makes an angle of  $30^\circ$  with the positive x-axis, find the magnitude of  $\mathbf{V}_x$  and  $\mathbf{V}_y$ .
15.  $\mathbf{V}_x$  has a magnitude of 11 and  $\mathbf{V}_y$  has a magnitude of 31. What is the acute angle formed by  $\mathbf{V}$  on the positive x-axis?
16. Luke pushes Beth on the swing. Luke pushed Beth's swing out through an angle of  $25.5^\circ$  and holds her there. If Beth weighs 95.5 pounds, find the magnitude of force that Luke must push horizontally to hold Beth in static equilibrium.

## ANSWERS

- 1) 2    2) 6    3) .4643    4)  $56.0^\circ$     5)  $84^\circ$     6)  $A=39.5^\circ?$ ,  $B=50.5^\circ?$ ,  $b=273$     7)  $b= 24.4$  in,  $B=32^\circ 50'$ ,  $c=45.0$  in
- 8) 54.8 ft    9) North = 10.2, West = 6.3    10)  $\sqrt{2}/2$     11)  $\sqrt{3}$     12)  $\sqrt{3}/2$     13)  $2/\sqrt{3}$
- 14)  $|V_x| = 4.3$ ,  $|V_y| = 2.5$     15)  $70^\circ$     16)  $|H| = 45.6$  lb.