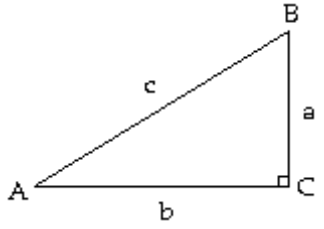
MAC1114 Trigonometry
5.8 Applications of Trigonometric Functions Practice 08

Solve the right triangle shown in the figure. Round lengths to one decimal place and express angles to the nearest tenth of a degree.



1) A = 34°, b = 49.4 1) _____
A) B = 56°, a = 73.2, c = 88.3 B) B = 34°, a = 73.2, c = 41
C) B = 34°, a = 41, c = 33.3 D) B = 56°, a = 33.3, c = 59.6

Solve the problem.

2) From a boat on the lake, the angle of elevation to the top of a cliff is 13°38'. If the base of the cliff is 2190 feet from the boat, how high is the cliff (to the nearest foot)? 2) _____
A) 534 feet B) 544 feet C) 531 feet D) 541 feet

3) A building 150 feet tall casts a 100 foot long shadow. If a person stands at the end of the shadow and looks up to the top of the building, what is the angle of the person's eyes to the top of the building (to the nearest hundredth of a degree)? (Assume the person's eyes are 5 feet above ground level.) 3) _____
A) 56.31° B) 55.41° C) 43.60° D) 46.40°

4) A radio transmission tower is 230 feet tall. How long should a guy wire be if it is to be attached 9 feet from the top and is to make an angle of 35° with the ground? Give your answer to the nearest tenth of a foot. 4) _____
A) 385.3 feet B) 280.8 feet C) 269.8 feet D) 401.0 feet

5) A straight trail with a uniform inclination of 11° leads from a lodge at an elevation of 700 feet to a mountain lake at an elevation of 7300 feet. What is the length of the trail (to the nearest foot)? 5) _____
A) 34,590 feet B) 6724 feet C) 7437 feet D) 38,258 feet

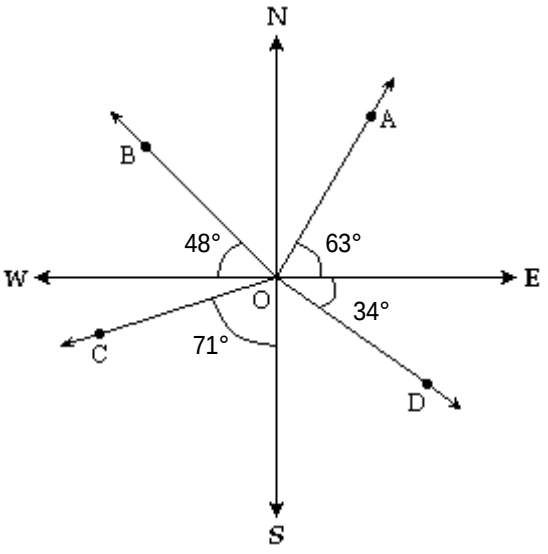
Using a calculator, solve the following problems. Round your answers to the nearest tenth.

6) A ship is 9 miles west and 11 miles south of a harbor. What bearing should the captain set to sail directly to harbor? 6) _____
A) N 39.3° E B) N 95.7° E C) N 50.7° E D) N 129.3° E

7) A ship leaves port with a bearing of N 72° W. After traveling 20 miles, the ship then turns 90° and travels on a bearing of S 18° W for 17 miles. At that time, what is the bearing of the ship from port? 7) _____
A) N 31.6° W B) N 58.4° W C) N 40.4° W D) N 112.4° W

Use the given figure to solve the problem.

8) Find the bearing from O to A. 8) _____



A) S 97° E B) N 27° E C) N 153° E D) N 63° E

An object is attached to a coiled spring. The object is pulled down (negative direction from the rest position) and then released. Write an equation for the distance of the object from its rest position after t seconds.

9) amplitude = 8 cm; period = 4 seconds 9) _____

A) $d = 8 \sin \frac{1}{2} \pi t$ B) $d = -8 \cos \frac{\pi}{4} t$ C) $d = -8 \cos \frac{1}{2} \pi t$ D) $d = -4 \cos \frac{1}{4} \pi t$

An object moves in simple harmonic motion described by the given equation, where t is measured in seconds and d in meters . Find the maximum displacement, the frequency, and the time required for one cycle.

10) $d = 2 \sin 3t$ meters 10) _____

A) displacement = 2 meters; period = $\frac{2}{3} \pi$ seconds; f = $\frac{3}{2\pi}$ oscillations/second

B) displacement = -2 meters; period = $\frac{2}{3} \pi$ seconds; f = $\frac{3}{2\pi}$ oscillations/second

C) displacement = 2 meters; period = $\frac{3}{2\pi}$ seconds; f = $\frac{2}{3} \pi$ oscillations/second

D) displacement = 2 meters; period = 3π seconds; f = $\frac{3}{\pi}$ oscillations/second

Answer Key
Testname: PRACTICE08

1) D
2) C
3) B
4) A
5) A
6) A
7) D
8) B
9) C
10) A