Name: _____   Date: _____

Chapter 4 Test

For questions 1 to 4, select the best answer.

**1.** Which trigonometric tool can be used to find the length of side MN?
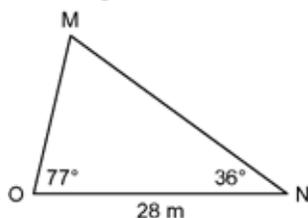
A sine law	**B** cosine law
C sine ratio	**D** tangent ratio

2. Which trigonometric tool *cannot* be used to find the length of hypotenuse AB?
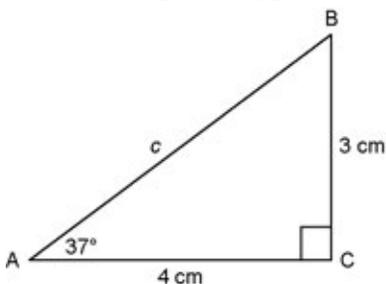
A cosine ratio	**B** Pythagorean theorem
C tangent ratio	**D** sine law

3. Given j, $\angle$J, and $\angle$K, what is the length of side k?
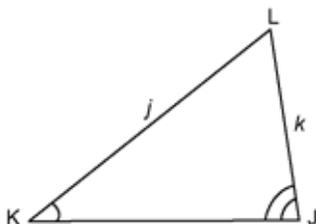
A $\dfrac{j}{\cos J}$	**B** $\dfrac{j \sin K}{\sin J}$
C $\dfrac{j}{\tan J}$	**D** $\dfrac{\sin J}{j \sin K}$

4. The angle of depression from an aircraft to a control tower is 7.9º. What is the angle of elevation from the control tower to the aircraft?

A 97.9º
B 7.9º
C 172.1º
D 82.1º

5. Find the length of the indicated side, to the nearest tenth of a unit.

a)

b)

c)
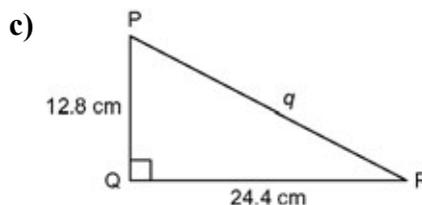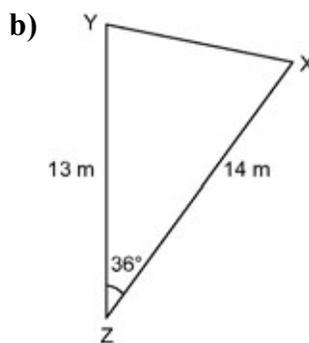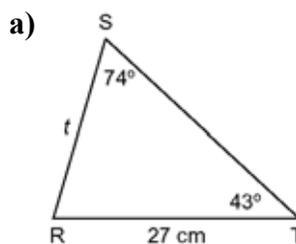
6. Find the measure of each marked angle, to the nearest tenth of a degree.

a)
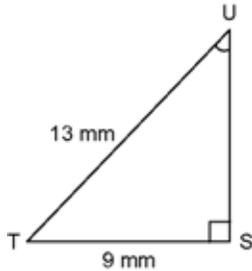
b)
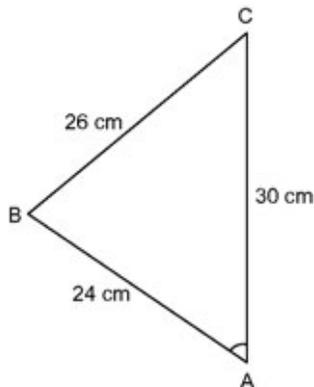
c)
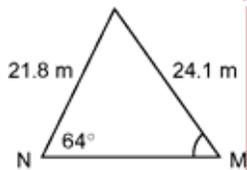
7. A boat is held in place by an anchor that lies on the seabed, 12-m below the surface of the water. The cable that attaches the boat to the anchor is 60 m in length. The boat travels away from the anchor until the cable forms a straight line.
   a) What angle does the cable make with the seabed, to the nearest tenth of a degree?
   b) How far is the boat from the anchor, to the nearest tenth of a metre?

8. A tree is leaning 5º from the vertical. A surveyor is standing directly below the topmost point of the tree. She walks 10 m away from the tree and measures the angle of elevation from the ground to the top of the tree to be 42º. How tall is the tree, to the nearest tenth of a metre?

9. The home plate, first base, and second base of an old baseball diamond form a scalene triangle. The angle at first base is 88º. The angle at second base is 44º. The distance between first and second base is 28 m. Determine the distance from home plate to first base, and the distance from home plate to second base. Round your answers to the nearest tenth of a metre.

10. Determine the measure of ∠BCD, to the nearest degree.