

Name: Key Class: _____ Date: _____

ID: A

Law of Sines and Cosines HW#1

Students must show ALL work for credit. Answers alone are NOT enough.

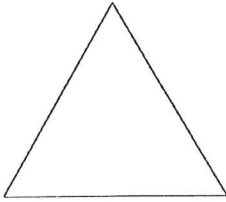
Multiple Choice

Identify the choice that best completes the statement or answers the question.

Find each measure using the given measures of $\triangle KLM$. Round measures to the nearest tenth.

B

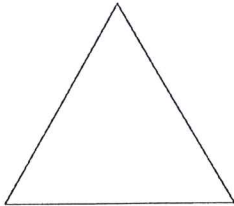
1. If $m\angle L = 48.4$, $m\angle K = 24.5$, and $l = 37.9$, find k .



- a. 15.7
- b. 21.0
- c. 28.3
- d. 68.3

C

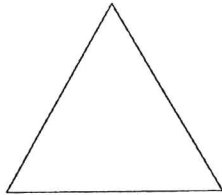
2. If $m\angle L = 47.1$, $k = 59.6$, and $l = 52.2$, find $m\angle K$.



- a. 45.8
- b. 0.8
- c. 56.7
- d. 43.6

A

3. In $\triangle ABC$, given the following measures, find the measure of the missing side to the nearest tenth.
 $a = 14.2$, $c = 13.9$, $m\angle B = 27.7$



- a. $b = 6.7$
- b. $b = 394$
- c. $b = 14.5$
- d. $b = 45.3$

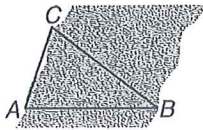
Name: _____

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8. For $\triangle PQR$, $m\angle P = 38$, $m\angle Q = 84$, $q = 12$. Solve the triangle. Round angle measures to the nearest degree and side measures to the nearest tenth.

$$\begin{array}{r} \angle R = 58^\circ \\ \hline p = 7.4 \\ \hline r = 10.2 \\ \hline \end{array}$$

9. To find the distance between two points A and B on opposite sides of a river, a surveyor measures the distance from A to C as 200 feet, $m\angle A = 72$, and $m\angle B = 37$. Find the distance from A to B . Round your answer to the nearest tenth.



$$c = 314.2 \text{ ft}$$

10. A highway has an angle of elevation of 32.8° and a vertical drop of 800 feet. To the nearest foot, how long is the highway?

$$\underline{1476.8 \text{ ft}}$$

11. A ship's sonar finds that the angle of depression to a wreck on the bottom of the ocean is 13.2° . If a point on the ocean floor is 75 meters directly below the ship, how many meters is it from that point on the ocean floor to the wreck? Round to the nearest tenth.

$$\underline{319.8 \text{ m}}$$

Essay

12. a. Describe how a person standing on an escalator would use angles of elevation and depression.
 b. Make a diagram and label the angles of elevation and depression.
 c. Describe the difference between the angles of elevation and depression.

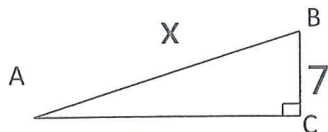
Student answers will vary.

Key Trigonometry Practice Test

must follow directions!

SHOW ALL WORK on SEPARATE PAPER! Must include work, the set up and circled final answer in organized manner.

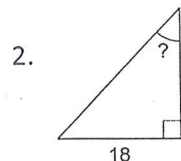
1. Consider the triangle ABC, shown below. Use the Pythagorean Theorem to find the missing side. Then find all trig ratios below and simplify all answers.



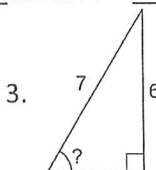
$X = 25$

$\sin \angle A = \frac{7}{25}$
 $\cos \angle A = \frac{24}{25}$
 $\tan \angle A = \frac{7}{24}$
 $\sin \angle B = \frac{24}{25}$
 $\cos \angle B = \frac{7}{25}$
 $\tan \angle B = \frac{24}{7}$

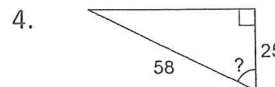
Find the missing angle measures.



$\theta = 43^\circ$

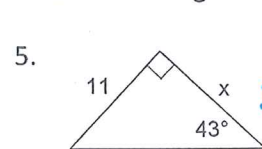


$\theta = 59^\circ$

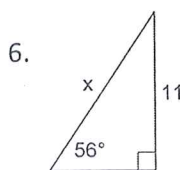


$\theta = 64^\circ$

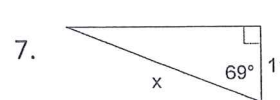
Find the missing sides.



$x = 11.80$



$x = 13.27$



$x = 30.69$

8. A rocket ship is two miles above sea level when it begins to climb at a constant angle of 3.5° for the next 40 ground miles. About how far above sea level is the rocket ship after its climb?

$4.45 \text{ miles above sea level}$

9. A bird watcher spied a woodpecker. The bird watcher is 40 yards lower than the woodpecker. The distance from the bird watcher to the woodpecker is 175 yards. What is the angle of elevation?

$\theta = 13^\circ$

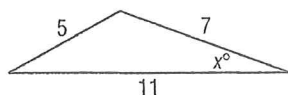
10. A hot air balloon is one mile above sea level when it begins to climb at a constant angle of 4° for the next 50 ground miles. About how far above sea level is the hot air balloon after its climb?

$4.5 \text{ miles above sea level}$

11. A highway has an angle of elevation of 32.8° and a vertical drop of 800 feet. To the nearest foot, how long is the highway?

1477 ft long

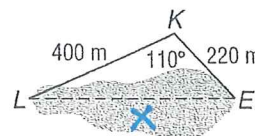
12. Find x to the nearest degree.



$x = 20^\circ$

16. To approximate the length of a pond, a surveyor walks 400 meters from point L to point K , then turns and walks 220 meters from point K to point E . If $m\angle LKE = 110$, find the length LE of the pond to the nearest tenth of a meter.

$x = 518.3 \text{ m}$

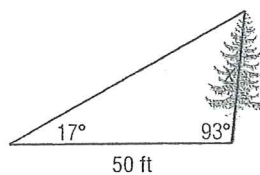


13. After flying at an altitude of 600 meters, a hot air balloon starts to descend when its ground distance from the landing pad is 10 kilometers. What is the angle of depression for this part of the flight?

$10 \text{ km} = 10,000 \text{ m}$

$\theta = 3^\circ$

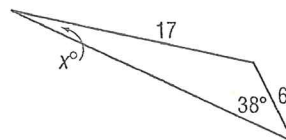
14. A tree grew at a 3° slant from the vertical. At a point 50 feet from the tree, the angle of elevation to the top of the tree is 17° . Find the length of the tree to the nearest tenth of a foot.



$\text{tree is } 15.6 \text{ ft}$

$x = 15.6 \text{ ft}$

15. Find x to the nearest degree.



$x = 13^\circ$