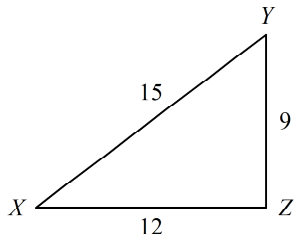
Name: _____ **Class:** _____ **Date:** _____ **ID: A**

Unit 3 Review

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

1. Write the trigonometric ratio for cos X as a fraction and as a decimal rounded to the nearest hundredth.

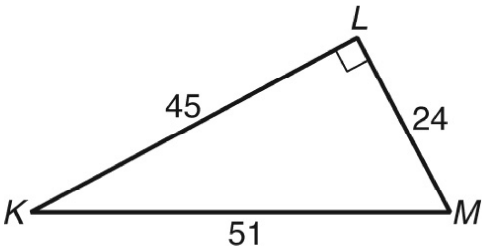


a. $\cos X = \frac{12}{9} \approx 1.33$
c. $\cos X = \frac{12}{15} = 0.80$
b. $\cos X = \frac{9}{15} = 0.60$
d. $\cos X = \frac{9}{12} = 0.75$

2. The hypotenuse of a 30°-60°-90° triangle measures $10\sqrt{3}$ inches. What is the measure of the longer leg?
a. 5 in.
c. 10 in.
b. $5\sqrt{3}$ in.
d. 15 in.

3. One leg of a 45°-45°-90° triangle measures 12 centimeters. What is the length of the hypotenuse?
a. $4\sqrt{3}$ cm
c. $12\sqrt{2}$ cm
b. $6\sqrt{2}$ cm
d. $12\sqrt{3}$ cm

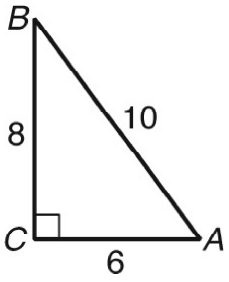
4. What is tan K?



a. $\frac{8}{17}$
c. $\frac{15}{17}$
b. $\frac{8}{15}$
d. $\frac{15}{8}$

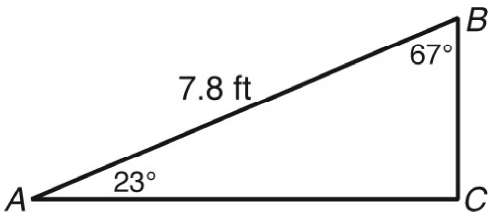
5. Which trigonometric ratio is defined as $\frac{\text{opposite leg}}{\text{adjacent leg}}$?
a. cosine
c. sine
b. hypotenuse
d. tangent

6. Which angle has a cosine of $\frac{3}{5}$?



a. $\angle A$
b. $\angle B$

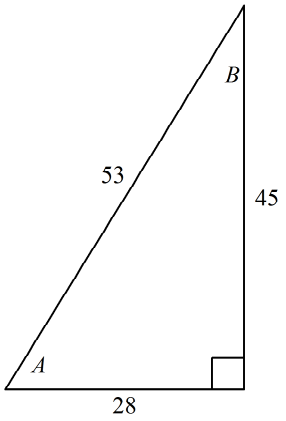
7. Which expression can be used to find AC?



a. $7.8(\sin 23°)$ ft
b. $7.8(\cos 67°)$ ft
c. $7.8(\cos 23°)$ ft
d. $7.8(\tan 67°)$ ft

8. The legs of a right triangle measure 14 and 25. To the nearest tenth of a degree, what is the measure of the angle opposite the shortest side?
a. 29.2°
b. 34.1°
c. 55.9°
d. 60.8°

9. Find the sine and cosine of the acute angles in the right triangle.



a. $\sin A = \frac{45}{53}$; $\cos A = \frac{28}{53}$
$\sin B = \frac{28}{53}$; $\cos B = \frac{45}{53}$

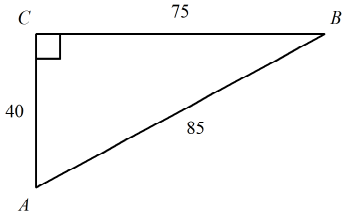
c. $\sin A = \frac{28}{53}$; $\cos A = \frac{45}{53}$
$\sin B = \frac{45}{53}$; $\cos B = \frac{28}{53}$

b. $\sin A = \frac{45}{28}$; $\cos A = \frac{45}{53}$
$\sin B = \frac{45}{53}$; $\cos B = \frac{45}{28}$

d. $\sin A = \frac{28}{53}$; $\cos A = \frac{45}{28}$
$\sin B = \frac{45}{28}$; $\cos B = \frac{28}{53}$

10. Write cos 16° in terms of the sine.
a. sin 164°
b. sin 74°
c. sin 84°
d. sin 16°

11. $\angle A$ and $\angle B$ are complementary angles as shown in right triangle ABC. Find the sine of $\angle A$ and the cosine of $\angle B$. Then describe how they are related.



a. $\sin A = \cos B = \frac{8}{17}$; they are the same ratio

b. $\sin A = \cos B = \frac{17}{15}$; they are the same ratio

c. $\sin A = \cos B = \frac{15}{8}$; they are the same ratio

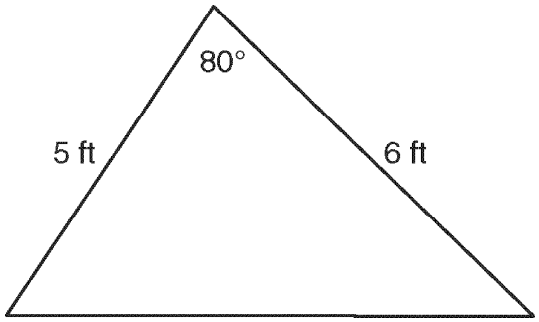
d. $\sin A = \cos B = \frac{15}{17}$; they are the same ratio

12. A slide 4.1 m long makes an angle of 27° with the ground. How high is the top of the slide above the ground?
    a. 1.86 m b. 3.65 m c. 1.93 m d. 2.09 m

13. A camera is mounted at a point 4,400 ft from the base of a rocket launching pad. Assuming the rocket rises vertically, what is the height of the rocket from its base when the camera angle is 30°? Round your answer to the nearest foot.
    a. 3,811 ft
    b. 2,540 ft
    c. 7,621 ft
    d. 2,200 ft

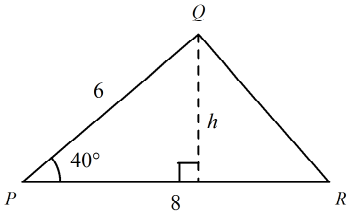
14. A triangle has a side with length 6 feet and another side with length 8 feet. The angle between the sides measures 73°. Find the area of the triangle. Round your answer to the nearest tenth.
    a. 1752.0 ft^2
    b. 7.0 ft^2
    c. 45.9 ft^2
    d. 23.0 ft^2

15. A blueprint of a table is shown below. What is the area of the table to the nearest tenth of a square foot? (*Picture is not to scale.*)



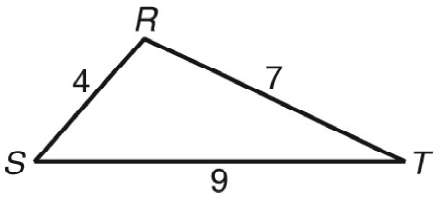
    a. 14.8 ft^2
    b. 29.5 ft^2

16. Give an expression for the height h of $\triangle PQR$ in terms of the given angle, and use the expression to write a formula for the height of the triangle in terms of the given quantities by replacing h in the formula $A = \frac{1}{2}bh$.



    a. $h = 6\tan 40°$, $A = \frac{1}{2}(8)(6\tan 40°)$
    b. $h = 6\sin 40°$, $A = \frac{1}{2}(8)(6\sin 40°)$
    c. $h = 6\cos 40°$, $A = \frac{1}{2}(8)(6\cos 40°)$
    d. $h = 8\sin 40°$, $A = \frac{1}{2}(8)(8\sin 40°)$

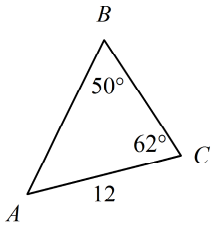
17. Which equation would you use to find $m\angle S$?



a. $7^2 = 4^2 + 9^2 - 2(4)(9)\cos S$

b. $4^2 = 7^2 + 9^2 - 2(7)(9)\cos S$

18. Find *AB*. Round to the nearest tenth.



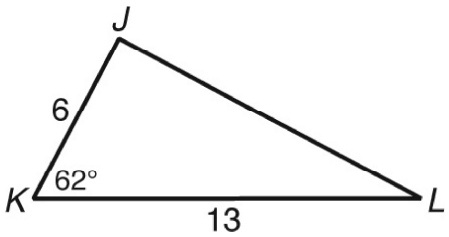
a. *AB* = 13.8

b. *AB* = 10.4

c. *AB* = 33.8

d. *AB* = 14.5

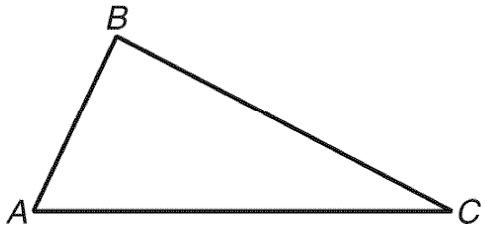
19. Which would you use to find *JL* in $\triangle KJL$?



a. Law of Cosines

b. Law of Sines

20. What information makes it possible to find the remaining measures in $\triangle ABC$ using the Law of Sines?



a. $AC = 13, m\angle A = 62°, AB = 6$

b. $AC = 13, m\angle B = 88°, AB = 6$

c. $AC = 13, AB = 6, BC = 11$

d. $m\angle A = 63°, m\angle B = 88°, m\angle C = 29°$

Unit 3 Review
Answer Section

MULTIPLE CHOICE

1. C
2. D
3. C
4. B
5. D
6. A
7. C
8. A
9. A
10. B
11. D
12. A
13. B
14. D
15. A
16. B
17. A
18. A
19. A
20. B