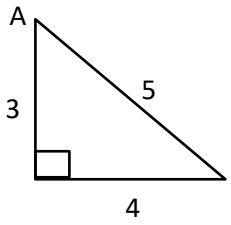
GPS Precalculus: Worksheet 5 - Trigonometry

Name _____

1. Which expression can be used to find $m\angle A$?

   a. $\tan^{-1}(0.75)$ c. $\cos^{-1}(0.8)$

   b. $\sin^{-1}\left(\frac{3}{5}\right)$ d. $\tan^{-1}\left(\frac{4}{3}\right)$

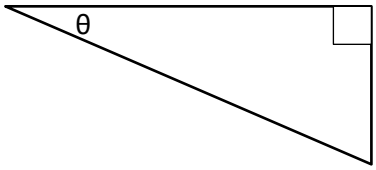


2. Which expression is NOT equivalent to $\cos 60^\circ$?

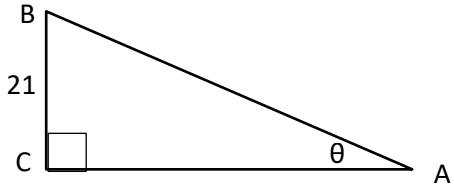
   a. $\frac{1}{2}$ c. $\frac{\sin 60^\circ}{\tan 60^\circ}$

   b. $\sin 30^\circ$ d. $\cos^{-1}\left(\frac{1}{2}\right)$

3. In the figure below, if $\sin\theta = \frac{5}{13}$, what are $\cos\theta$ and $\tan\theta$?

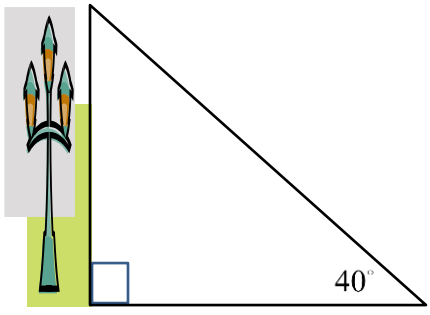


4. In the figure below, $\sin\theta = 0.7$

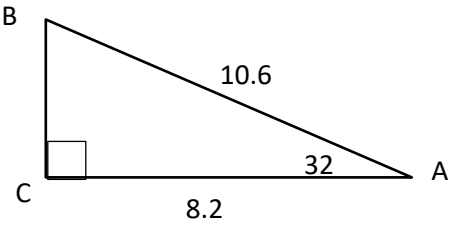


What is the length of $\overline{AC}$?

5. Approximately how tall is the streetlight?



6. Right triangle ABC is pictured below



Which equation give the correct value for BC?

a. $\sin 32^\circ = \frac{BC}{8.2}$

b. $\cos 32^\circ = \frac{BC}{10.6}$

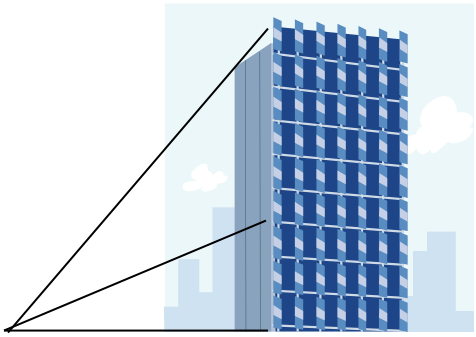
c. $\tan 58^\circ = \frac{8.2}{BC}$

d. $\sin 58^\circ = \frac{BC}{10.6}$

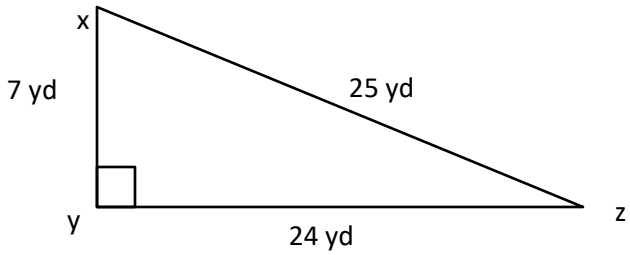
7. A surveyor 50 meters from the base of a cliff measures the angle of elevation to the top of the cliff is 72°. What is the height of the cliff? Round to the nearest meter.

8. Grand Canyon Problem: From a point on the North Rim of the Grand Canyon, a surveyor measures an angle of depression of 1° to a point on the South Rim. From an aerial photograph, he determines that the horizontal distance between the two points is 10 miles. How many **feet** is the South Rim below the North Rim to the nearest foot? (Note: 1 mile = 5280 feet)

9. At a point 125 feet from the base of a building, the angle of elevation to the third floor is 22° and to the ninth floor is 53°. How much higher is the 9th floor than the 3rd floor?



Use the triangle below for questions 10 and 11.



10. Which ratio is equivalent to sin z?

a. $\frac{7}{24}$

b. $\frac{7}{25}$

c. $\frac{24}{25}$

d. $\frac{25}{7}$

11. Which ratio is equivalent to tan x

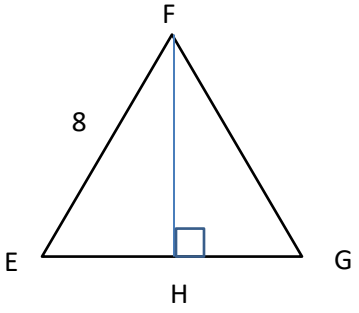
a. $\frac{7}{24}$

b. $\frac{7}{25}$

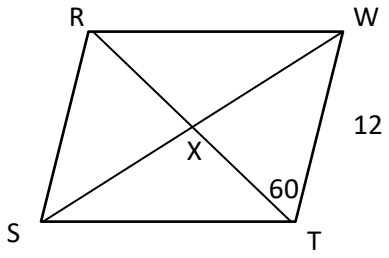
c. $\frac{24}{25}$

d. $\frac{24}{7}$

12. What is the length of the altitude $\overline{FH}$ of equilateral triangle EFG below?
(HINT: Find the angle measures first)

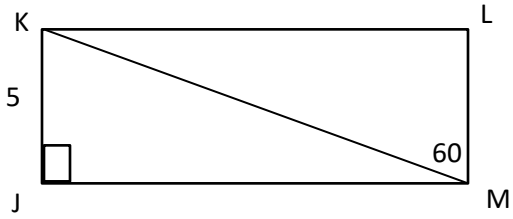


13. If $RSTW$ is a rhombus, what is the area of $\triangle$WXT?

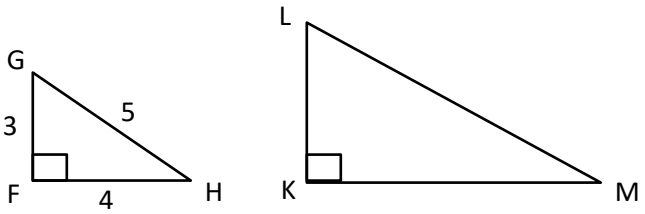


a. $18\sqrt{3}$
b. $36\sqrt{3}$
c. 36
d. 48

14. In rectangle $JKLM$ below, what is the length of diagonal KM ?



$\triangle$FGH is similar to $\triangle$KLM. Use these triangles for questions 15 – 17

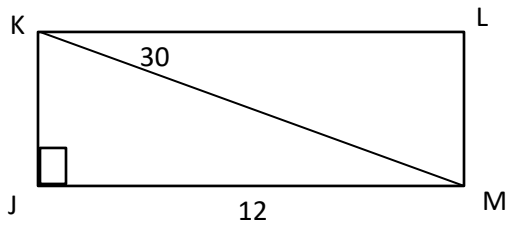


15. Which of the following must be true?
    a. tan G = tan L
    b. tan G = tan M
    c. sin H = tan L
    d. sin H = tan M

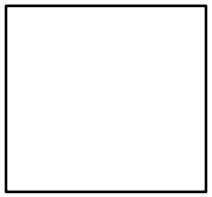
16. If $\sin G = \frac{4}{5}$, then which of the following must also be true?
    a. $\sin H = \frac{4}{5}$
    b. $\sin K = \frac{4}{5}$
    c. $\sin M = \frac{4}{5}$
    d. $\sin L = \frac{4}{5}$

17. If $\sin H = \frac{3}{5}$, then which of the following must be also be true?
    a. $\sin K = \frac{3}{5}$
    b. $\sin L = \frac{3}{5}$
    c. $\cos L = \frac{3}{5}$
    d. $\cos M = \frac{3}{5}$

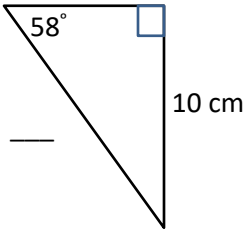
18. Find the diagonal length



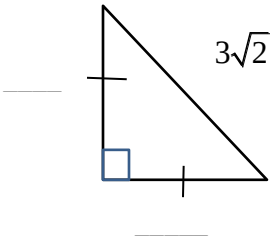
19. Given the diagonal of a square of $5\sqrt{10}$, find the side length.



20. Find the missing value(s)



21. Find the missing value(s)



22. Find the missing value(s)