1) What is the cosine of angle A in right triangle ΔABC below?

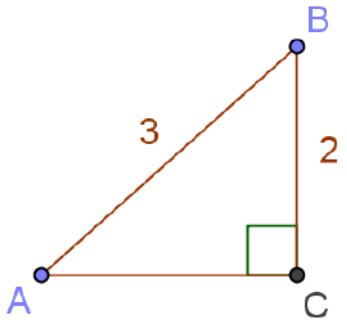
F. $\frac{2}{\sqrt{5}}$

G. $\frac{2}{3}$

H. $\frac{\sqrt{5}}{3}$

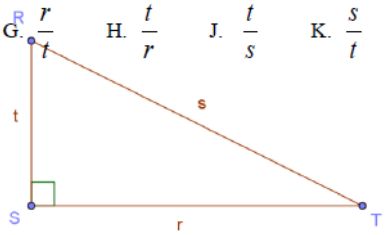
J. $\frac{\sqrt{5}}{2}$

K. $\frac{3}{\sqrt{5}}$



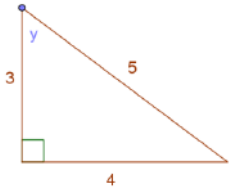
2) For right triangle ΔRST shown below, what is $\tan R$?

F. $\frac{r}{s}$ G. $\frac{r}{t}$ H. $\frac{t}{r}$ J. $\frac{t}{s}$ K. $\frac{s}{t}$



3) Based on the triangle shown below, what is $\cos y$?

A. $\frac{3}{5}$ B. $\frac{4}{5}$ C. $\frac{3}{4}$ D. $\frac{4}{3}$ E. $\frac{5}{3}$



4) If $\sin\alpha = \frac{12}{13}$, and $\cos\alpha = \frac{5}{13}$, then $\tan\alpha = ?$

F. $\frac{5}{12}$ G. $\frac{12}{5}$ H. $\frac{60}{13}$

J. $\frac{7}{13}$ K. $\frac{17}{13}$

5) A 8-foot ladder leaning against the wall makes a $60°$ angle with the floor. What is the height H of the ladder where it touches the wall?

F. $8 \sin 60$

G. $8 \cos 60$

H. $8 \tan 60$

J. $\frac{8}{\sin 60}$

K. $\frac{8}{\cos 60}$

6) An object 4 feet tall casts a 3-foot shadow when the angle of elevation of the sun is θ what is $\tan(\theta)$?

F. $\frac{3}{4}$

G. 1

H. $\frac{4}{3}$

J. 7

K. 12

7) The sides of a triangle are 5, 12 and 13 inches long. What is the angle between the 2 shortest sides?

A. $30°$
B. $45°$
C. $60°$
D. $90°$
E. $120°$

8) $\overline{CD}$ is an altitude of equilateral triangle ΔABC. If $\overline{CD}$ is $6\sqrt{3}$ units long, how many units long is $\overline{AC}$?

F. $3\sqrt{3}$
G. 6
H. 12
J. $12\sqrt{3}$
K. 36

9) In the right angle triangle below, if $\angle C$ has a sine of, $\frac{2}{\sqrt{29}}$ a cosine of $\frac{5}{\sqrt{29}}$, and a tangent of $\frac{2}{5}$, how many inches long is $\overline{AB}$?

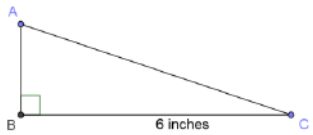
F. $\frac{2}{5}$

G. 6

H. $\frac{12}{5}$

J. $\frac{12}{\sqrt{29}}$

K. $\frac{30}{\sqrt{29}}$



10) If tangent of an angle is $\frac{1}{2}$, what is the cosine of the same angle?

A. $\frac{5}{2}\sqrt{2}$

B. $\frac{1}{2}$

C. $\frac{1}{5}$

D. $\frac{2\sqrt{5}}{5}$

E. $\frac{\sqrt{2}}{3}$

11) From a hot air balloon, the angle between a radio antenna straight below and the base of the library downtown is $57°$. If the distance between the radio antenna and the library is 1.3 miles, how many miles high is the balloon?

A. $1.3 \sin 57°$

B. $1.3 \tan 57°$

C. $\frac{1.3}{\sin 57°}$

D. $\frac{1.3}{\cos 57°}$

E. $\frac{1.3}{\tan 57°}$

12) In ΔABC, shown below, the measure of $\angle B$ is 41°, the measure of $\angle C$ is 34°, and $\overline{AB}$ is 25 units long. Which of the following is an expression for the length, in units, of $\overline{BC}$? (Note: The law of sines states that, for any triangle, the ratios of the sines of the interior angles to the lengths of the sides opposite those angles are equal.)

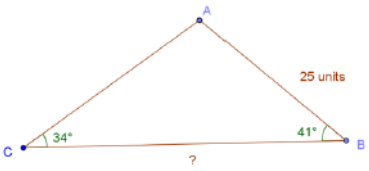
A. $\frac{25 \sin 105°}{\sin 41°}$

B. $\frac{25 \sin 105°}{\sin 34°}$

C. $\frac{25 \sin 34°}{\sin 75°}$

D. $\frac{25 \sin 75°}{\sin 41°}$

E. $\frac{25 \sin 41°}{\sin 105°}$



13) A surveyor took and recorded the measurements shown in the figure below. If the surveyor wants to use these 3 measurements to calculate the length of the pond, which of the following would be the most directly applicable?

F. The ratios for the side lengths of 30°-60°-90° triangles

G. The ratios for the side lengths of 45°-45°-90° triangles

H. The law of cosines: For any ΔABC, where a is the length of the opposite $\angle A$, b is the length of the opposite $\angle B$, and c is the length of the side opposite $\angle C$, $a^2 = b^2 + c^2 - 2bc\cos(\angle A)$

J. The Pythagorean theorem

K. A formula for the area of a triangle

Answers

1 H
2 G
3 A
4 G
5 F
6 H
7 D
8 H
9 H
10 D
11 E
12 B
13 H