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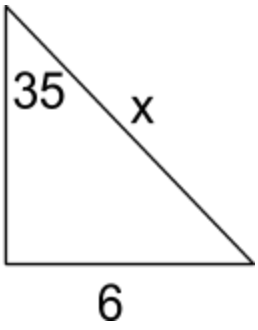
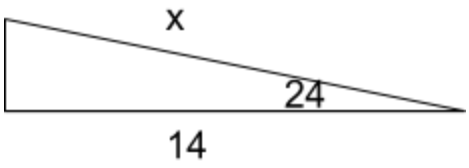
A5.B-Solving Right Triangles, Application of Trig. Functions

Problems 1-5: Using trig functions, write an equation for the triangle and solve for x. Assume all the following are Right Triangles. (Round answers to two decimal places.)

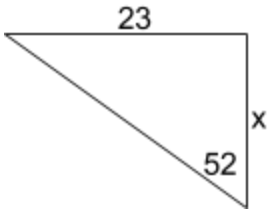
1.



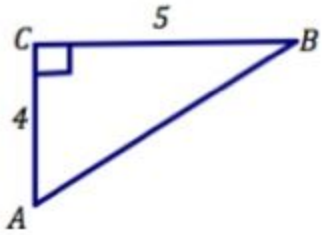
2.



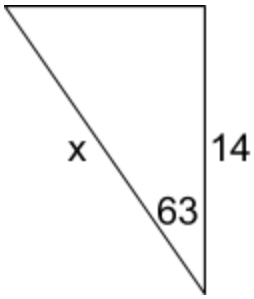
3.



4. Find the measures of angles A and B.



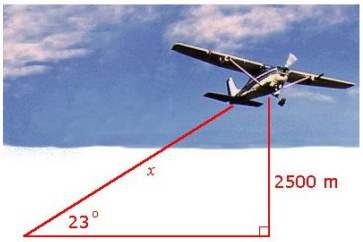
5.



6. A support wire from the top of a transmission tower forms a 75^o angle with the ground, 55 ft from the base. How tall is the tower?

7. The Chrysler Building in New York City casts a shadow of 130 ft when the sun's rays form an 83^o angle with the building. What is the height of the building?

8. An airplane is flying at a height of 2500 meters with an angle of elevation of 23^o. How far away is the plane from you?



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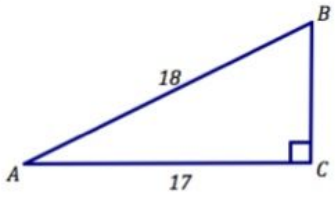
9. From a point on top of a 100-foot cliff, the angle of depression to a cabin below the cliff is 25. How far is the cabin from the base of the cliff?

10. A lookout on a ship spots a school of whales. The lookout is standing 55 feet above the ocean surface and measures an angle of depression to the whales of 3. How far from the ship is the school of whales?

11. FInd the measures of A & B.



12. A Painter leans a 15-ft ladder against a house. The base of the ladder is 5 ft from the house. To the nearest tenth of a foot, how high on the house does the ladder reach?

13. Divide using Long Division:

$$\frac{3x^4-4x^3-8x^2+6}{3x-1}$$

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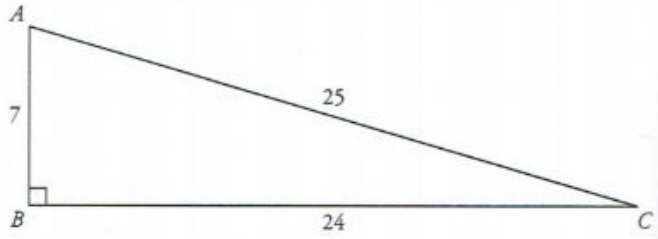
14.

3. For right triangle ΔABC shown below, which of the following trigonometric measures is greater than 1?



A. $\sin A$

B. $\cos A$

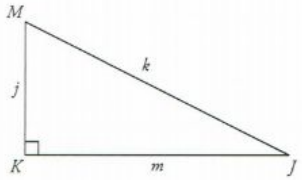
C. $\tan A$

D. $\sin C$

E. $\tan C$

15.

2. For right triangle ΔJKM shown below, which of the following expressions is equal to $\frac{1}{\tan J}$?



F. $\frac{m}{j}$

G. $\frac{j}{k}$

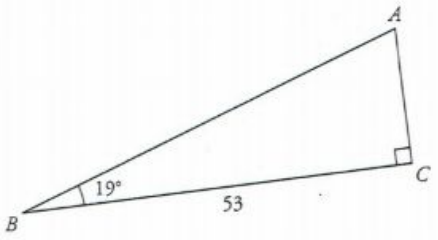
H. $\frac{j}{m}$

J. $\frac{m}{k}$

K. $\frac{k}{j}$

16.

4. In the following diagram, which of the following expressions gives the correct length of $\overline{AC}$ in triangle ΔABC?



F. $\frac{53}{\cos 71°}$

G. $\frac{53}{\tan 19°}$

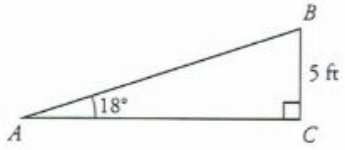
H. $53 \tan 19°$

J. $53 \cos 19°$

K. $53 \cos 71°$

17.

7. A ramp must be built to reach a height of 5 feet, with an incline of 18°. What is the length of the ramp, $\overline{AB}$ in feet?



A. $\frac{5}{\sin 18°}$

B. $\frac{5}{\cos 18°}$

C. $5 \sin 18°$

D. $5 \cos 18°$

E. $5 \tan 18°$

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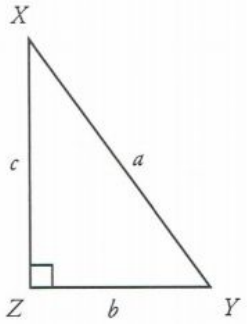
18.

11. Right triangle ΔXYZ has side lengths measured in meters, as drawn below. For triangle ΔXYZ, $(\cos X)(\tan X)$ is equivalent to:



A. $\frac{b}{a}$

B. $\frac{c}{a}$

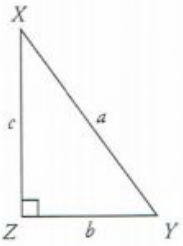
C. $\frac{b^2}{a^2}$

D. $\frac{c^2}{ab}$

E. $\frac{bc}{a^2}$

19.

9. Right triangle ΔXYZ has side lengths measured in feet, as drawn below. For triangle ΔXYZ, $(\sin X)(\cos Y)$ is equivalent to:



A. $\frac{b}{a}$

B. $\frac{c}{a}$

C. $\frac{b^2}{a^2}$

D. $\frac{c^2}{a^2}$

E. $\frac{bc}{a^2}$

20.

An equation is shown.

$$M = Rx - \frac{wx^2}{2}$$

Solve for w.

(A) $w = \frac{2M - Rx}{x^2}$

(B) $w = \frac{Rx - 2M}{x^2}$

(C) $w = \frac{2M - 2Rx}{x^2}$

(D) $w = \frac{2Rx - 2M}{x^2}$

21.

A study says the mean amount of cream filling in a double stuffed Oreo is 1.7 ounces, with a standard deviation of 0.25 ounces.

You wonder if this is really correct, or if Oreos have started ripping you off. You do a sample of 40 Oreos, and find a mean of 1.55 ounces.

Calculate the Margin of Error. Calculate the Margin of Error

Use your margin of error to calculate a 95% confidence interval. Round to the nearest hundredth.

Does your Sample provide strong evidence that the mean amount of cream filling has changed from 1.7 ounces.