

Bell Ringer

Thursday 3/7

Given $f(x) = x - 4$, $g(x) = -x^2 - 3$, and $h(x) = \frac{4}{x-2}$, find the following:

1. $(f \cdot g)(-2)$

$$\begin{aligned} & (-2-4)(-(-2)^2-3) \\ & (-6)(-7) \\ & = 42 \end{aligned}$$

2. $\left(\frac{h}{f}\right)(2)$

$$\frac{\frac{4}{2-2}}{\frac{2-4}{1}} = \frac{4}{2-2} \cdot \frac{1}{x-4}$$

~~$\frac{4}{2-2}$~~ $\frac{4}{-2}$ Undefined

3. $(g \cdot h)(x)$

$$\left(\frac{-x^2-3}{1}\right)\left(\frac{4}{x-2}\right)$$

$$\frac{-4x^2-12}{x-2}$$

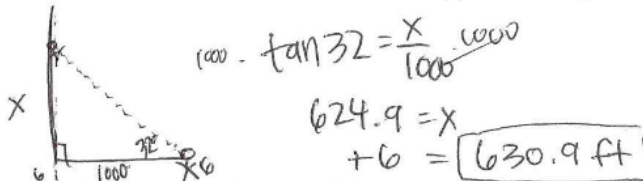
Turn Bell Ringers in!

correct 11.3

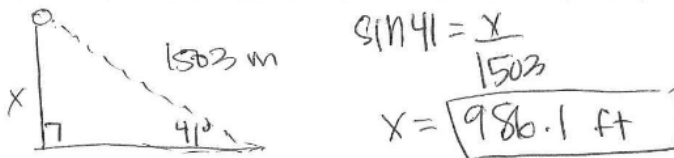
1 pt for each

Name: key Hour: _____ 11.3-Applications of Finding Missing Sides ws

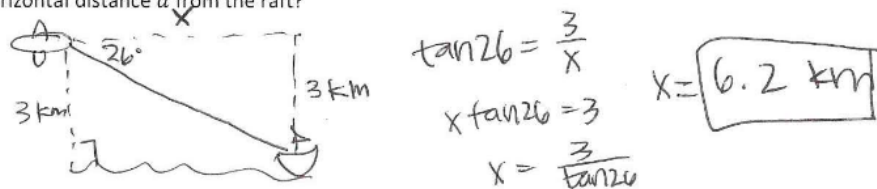
1. You sight a rock climber on a cliff at a 32° angle of elevation. Your eye level is 6 ft above the ground and you are 1000 ft from the base of the cliff. What is the approximate height of the rock climber from the ground?



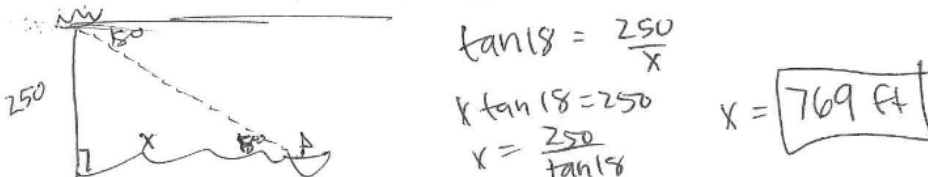
2. A meteorologist measures the angle of elevation of a weather balloon as 41° . A radio signal from the balloon indicates that it is 1503 m from his location. To the nearest meter, how high above the ground is the balloon?



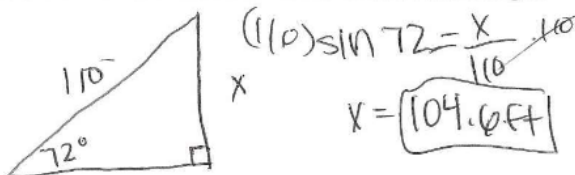
3. An airplane pilot sights a life raft at a 26° angle of depression. The airplane's altitude is 3 km. What is the airplane's horizontal distance d from the raft?



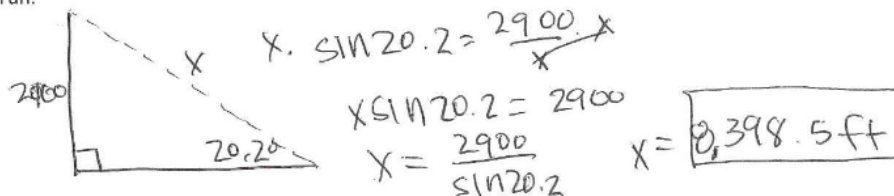
4. A tourist looks out from the crown of the Statue of Liberty, approximately 250 ft above the ground. The tourist sees a ship coming into the harbor and measures the angle of depression as 18° . Find the distance from the base of the statue to the ship to the nearest foot.



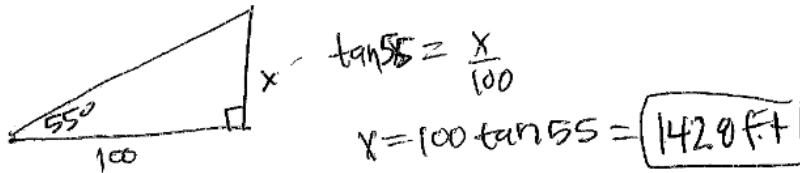
5. A safety regulation states that the maximum angle of elevation for a rescue ladder is 72° . A fire department's longest ladder is 110 feet. What is the maximum safe rescue height?



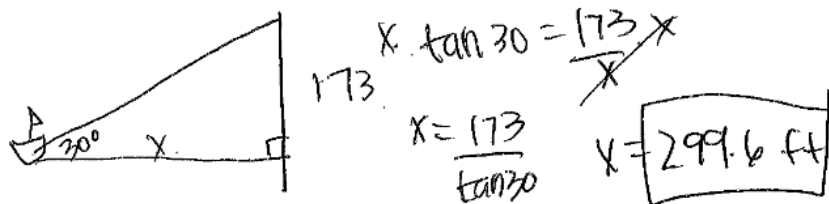
6. The Aerial run in Snowbird, Utah, has an angle of elevation of 20.2° . Its vertical drop is 2900 feet. Estimate the length of this run.



- * 7. A surveyor stands 100 feet from a building and sights the top of the building at a 55° angle of elevation. Find the height of the building.



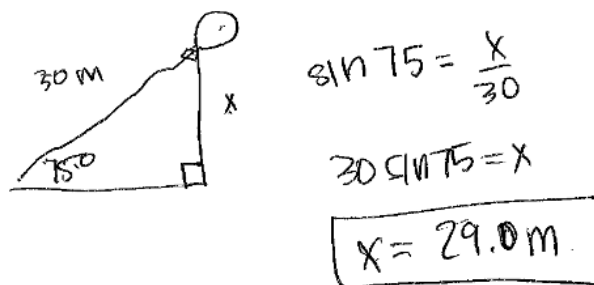
8. In a sightseeing boat near the base of the Horseshoe Falls at Niagara Falls, a passenger estimates the angle of elevation to the top of the falls to be 30° . If the Horseshoe Falls are 173 feet high, what is the distance from the boat to the base of the falls?



- * 9. A surveyor is standing 50 feet from the base of a large tree. The surveyor measures the angle of elevation to the top of the tree as 71.5° . How tall is the tree?



10. A 30-meter line is used to tether a helium-filled balloon. Because of a breeze, the line makes an angle of approximately 75° with the ground. What is the height of the balloon?



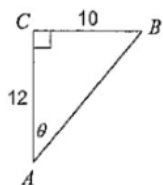
due tomorrow - questions?

Name: _____ Hour: _____

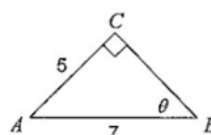
11.4 Finding Missing Angles ws

Find the measure of each angle indicated. Round to the nearest tenth.

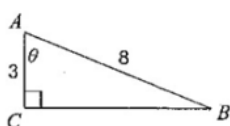
1)



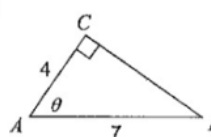
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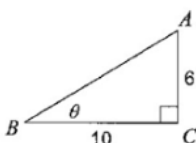
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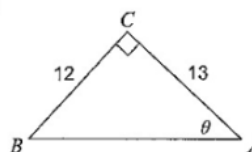
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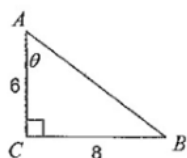
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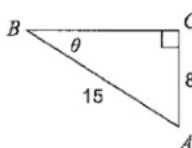
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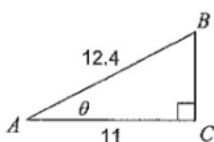
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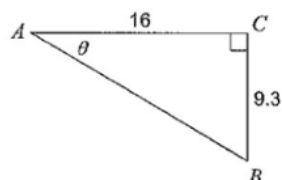
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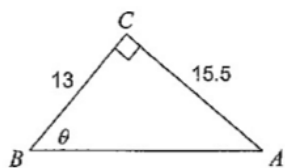
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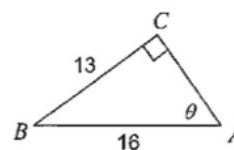
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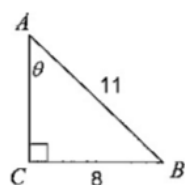
11)



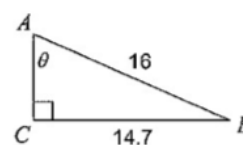
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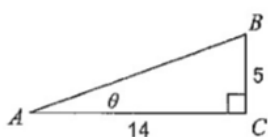
13)



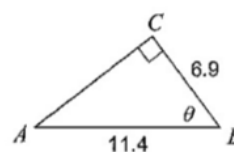
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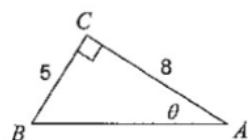
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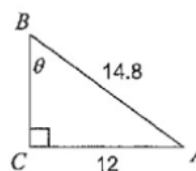
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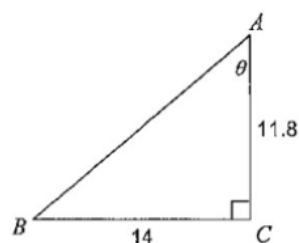
17)



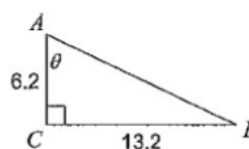
18)



19)



20)

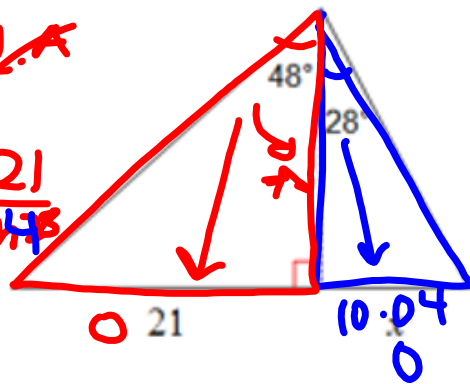


Find the value of x

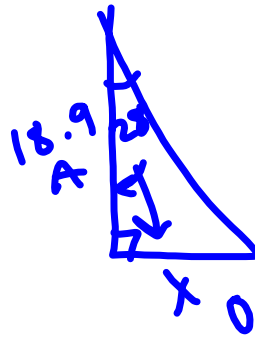
$$A \tan 48 = \frac{21 \cdot A}{A}$$

$$A \cdot \frac{\tan 48}{\tan 48} = \frac{21}{\tan 48}$$

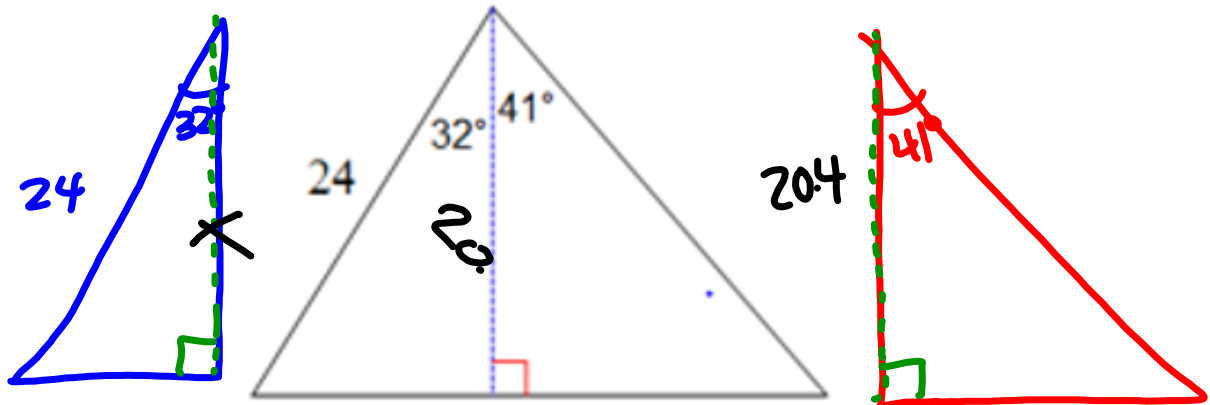
$$A = 18.9$$



$$(18.9) \tan 28 = \frac{x}{18.9}$$



Find the value of x



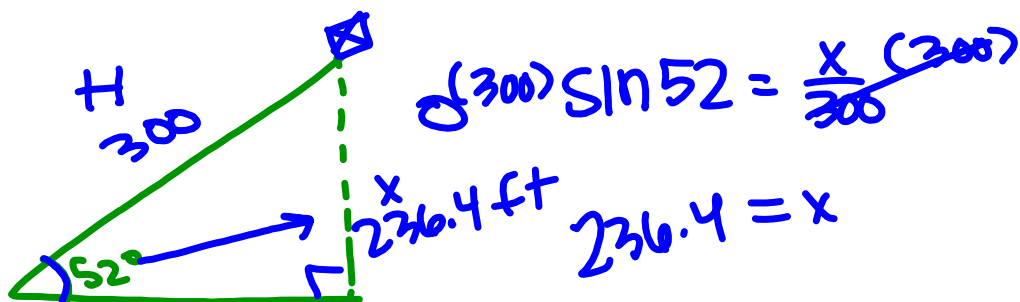
$$24 \cos 32 = \cancel{24} \frac{x}{24}$$

$$204 \cdot \tan 41 = \frac{x}{204} \cdot 204$$

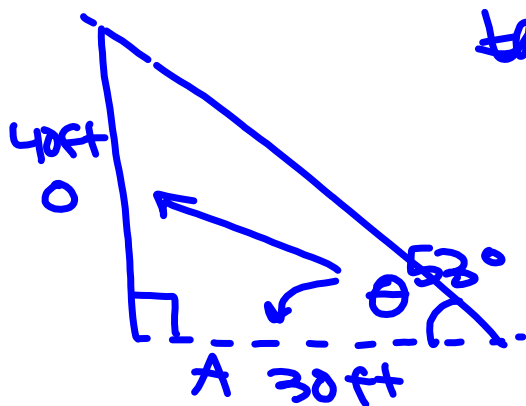
(17.7)

Guided Notes...

1. A boy who is flying a kite lets out 300 feet of string which makes an angle of 52° with the ground. Assuming that the string is stretched taut, find to the nearest foot how high the kite is above the ground.

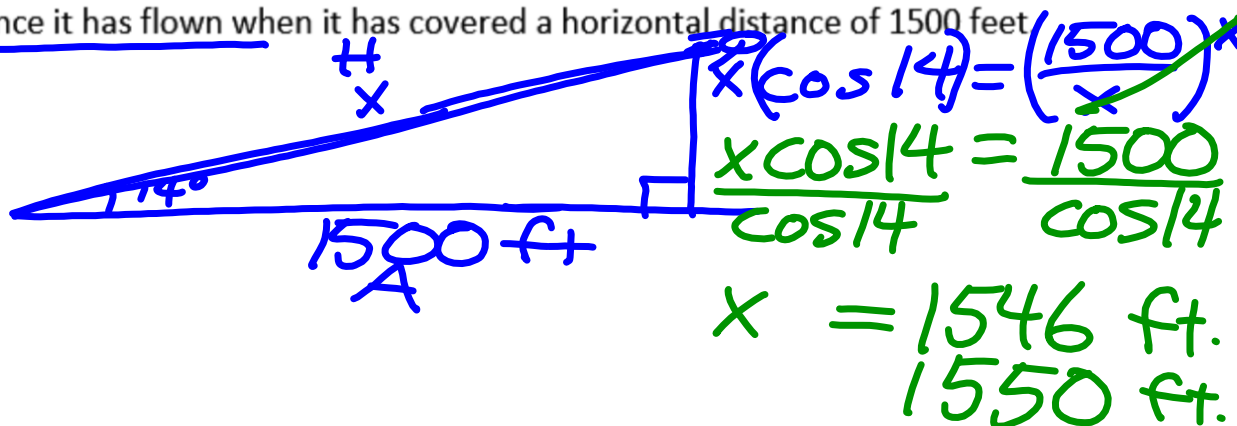


2. Find, to the nearest degree, the angle which the sun's rays make with the ground when a flagpole 40 feet high casts a shadow 30 feet long.

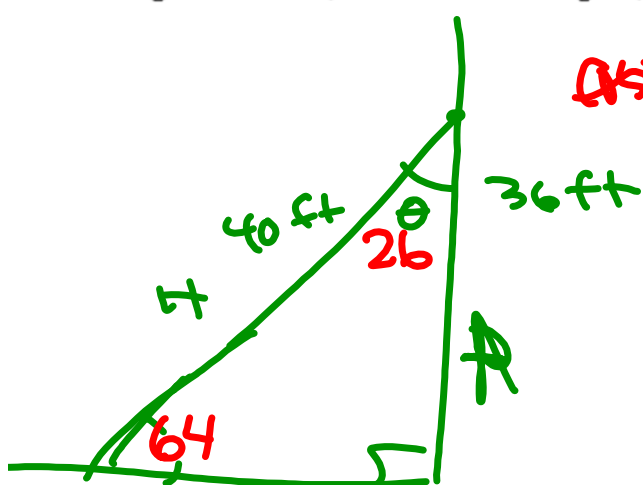


$$\tan^{-1} \tan \theta = \tan^{-1} \frac{40}{30}$$
$$\theta = \tan^{-1} \left(\frac{40}{30} \right)$$
$$53.1^\circ$$

3. An airplane rises at an angle of 14° with the ground. Find, to the nearest 10 feet, the distance it has flown when it has covered a horizontal distance of 1500 feet.



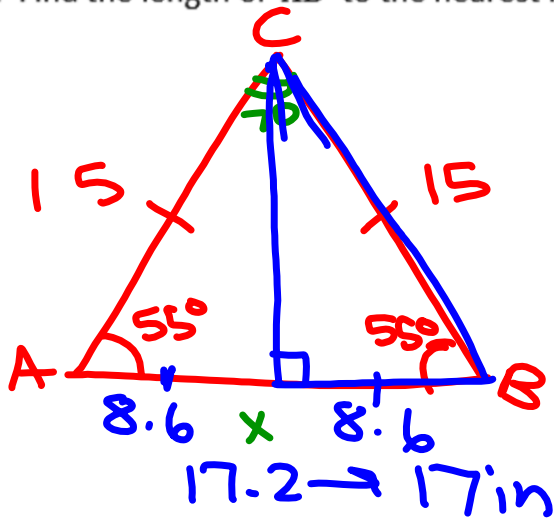
4. The top of a 40-foot ladder which is leaning against a wall reaches the wall at a point 36 feet from the ground. Find, to the nearest degree, the angle which the ladder makes with the wall.



$$\cos^{-1} \cos \theta = \frac{36}{40}$$

$$\theta = \cos^{-1} \left(\frac{36}{40} \right)$$
$$\theta = 26^\circ$$

5. In an isosceles triangle $\triangle ABC$, \overline{AC} and \overline{CB} are 15 inches. Angle A and angle B are both 55° . Find the length of \overline{AB} to the nearest inch.



$$(15) \cos 55 = \frac{x}{15}$$

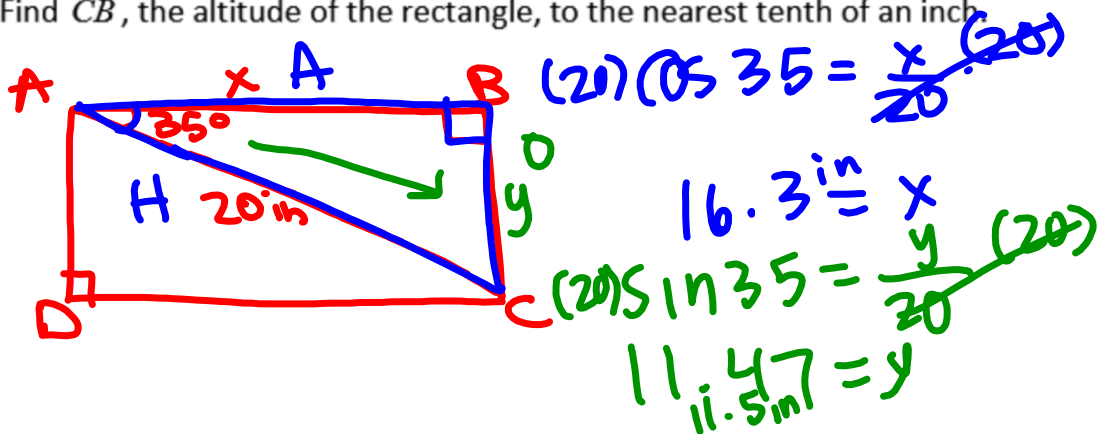
$$\sin 35 = \frac{x}{15}$$

Diagram of a right-angled triangle with a hypotenuse of 15 and an angle of 55° . The adjacent side is labeled $x = 8.6$.

6. In rectangle $\square ABCD$, diagonal \overline{AC} , which is 20 inches in length, makes an angle of 35° with the base \overline{AB} .

a. Find \overline{AB} , the base of the rectangle, to the nearest tenth of an inch.

b. Find \overline{CB} , the altitude of the rectangle, to the nearest tenth of an inch.



due Monday - front only

Name: _____ Hour: _____

11.5 Trig Application Problems

1. The taut string of a kite makes an angle with the ground of 60° . The length of the string is 400 feet. What is the height of the kite, to the nearest tenth?
2. A ladder, 500 cm long, leans against a building. If the angle between the ground and the ladder is 57° , how far from the wall is the bottom of the ladder? Found the answer to the nearest tenth.
3. An isosceles triangle has sides length 5,5,6. Find the measure, to the nearest degree, of each angle of the triangle. (Hint: draw the altitude)
4. The sides of a rectangle are 25 cm and 8 cm. What is the measure, to the nearest degree, of the angle formed by the short side and a diagonal of the rectangle?
5. The lengths of a pair of adjacent sides of a rectangle are 14 and 22. Find, to the nearest degree, the angle a diagonal makes with the shorter side.
6. A kite is flying 115 ft above the ground. The length of the string to the kite is 150 ft, measured from the ground. Find the angle, to the nearest degree, that the string makes with the ground.

7. An observation tower is 75 m high. A support wire is attached to the tower 20 m from the top. If the support wire and the ground form an angle of 46° , what is the length of the support wire, to the nearest tenth?

8. At a point 30 feet from the base of a tree, the angle formed with the ground looking to the top measures 53° . Find, to the nearest foot, the height of the tree.

9. The base of a rectangle measures 8 feet and the altitude measures 5 feet. Find to the nearest degree, the measure of the angle that the diagonal makes with the base.

10. In an isosceles triangle the vertex angle measures 64° and each leg measures 10 inches, find, to the nearest tenth of an inch, the length of the altitude to the base.

