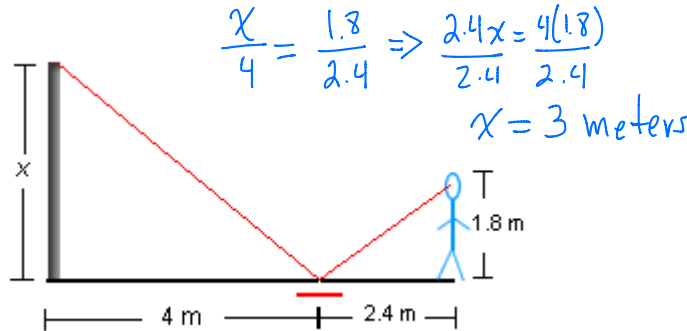


UNIT 5
ASSIGNMENT #10

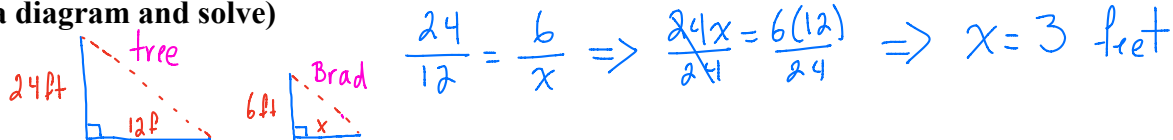
Similar Triangles—Word Problems

DIRECTIONS: In your groups, use the guided notes on approaching word problems to answer this question. As you answer each question, make sure you discuss with your group potential problems.

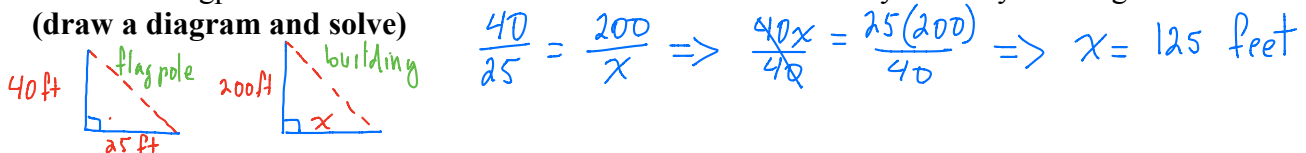
1. A statue, honoring Ray Hnatyshyn (1934–2002), can be found on Spadina Crescent East, near the University Bridge in Saskatoon. Use the information below to determine the unknown height of the statue.



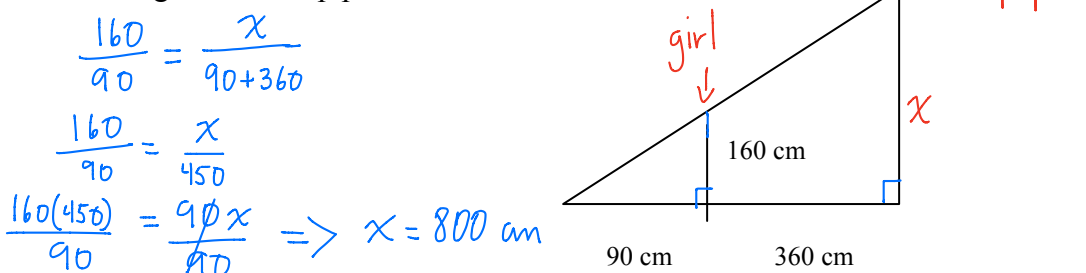
2. A tree 24 feet tall casts a shadow 12 feet long. Brad is 6 feet tall. How long is Brad's shadow? (**draw a diagram and solve**)



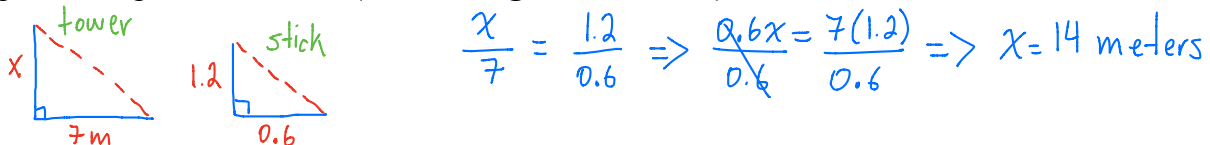
3. A 40-foot flagpole casts a 25-foot shadow. Find the shadow cast by a nearby building 200 feet tall. (**draw a diagram and solve**)



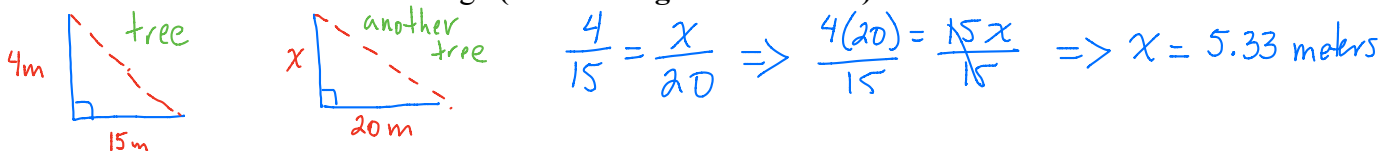
4. A girl 160 cm tall, stands 360 cm from a lamp post at night. Her shadow from the light is 90 cm long. How high is the lamp post?



5. A tower casts a shadow 7 m long. A vertical stick casts a shadow 0.6 m long. If the stick is 1.2 m high, how high is the tower? (**draw a diagram and solve**)

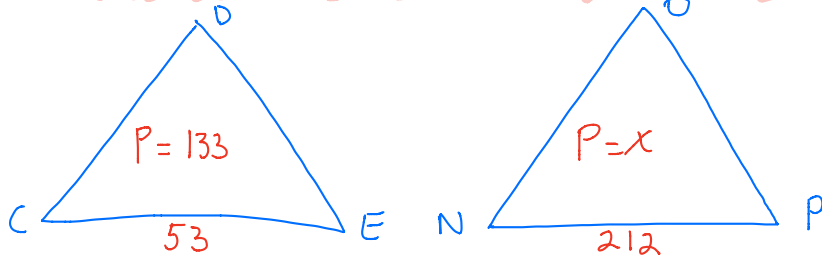


6. A tree with a height of 4m casts a shadow 15 m long on the ground. How high is another tree that casts a shadow which is 20 m long? (**draw a diagram and solve**)



Does not matter what 2 sides

7. Triangles CDE and NOP are similar. The perimeter of smaller triangle CDE is 133. The lengths of two corresponding sides on the triangles are 53 and 212. What is the perimeter of NOP?

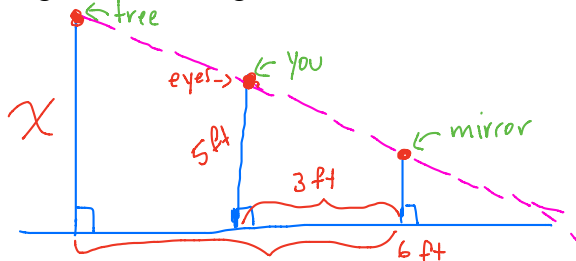


$$\frac{133}{53} = \frac{x}{212} \Rightarrow \frac{133(212)}{53} = \frac{53x}{53}$$

$$532 = x$$

units

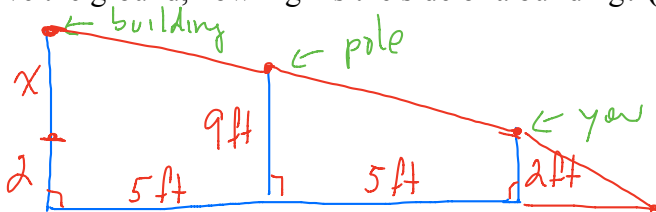
8. You want to determine the height of a tree. You have a friend place a small mirror on the ground so that you can see the reflection of the top of the tree. Your friend then measures from you to the mirror and finds that it is 3 feet. The distance from the mirror to the tree is 6 feet. If your eyes are 5 feet above the ground, how high is the tree?



$$\frac{x}{6} = \frac{5}{3}$$

$$\frac{3x}{3} = \frac{5(6)}{3} \Rightarrow x = 10 \text{ ft}$$

9. You want to determine the height of a side of a building. You are sitting on the ground and looking up at it. You have a friend take a 9 foot pole and move it away from you until it's tip is in your line of sight with the top of the side of a building. Your friend then measures from you to the pole and finds that it is 5 feet. The distance from the pole to the side of a building is 5 feet. If your eyes are 2 feet above the ground, how high is the side of a building? (don't forget about the height of your eyes!)



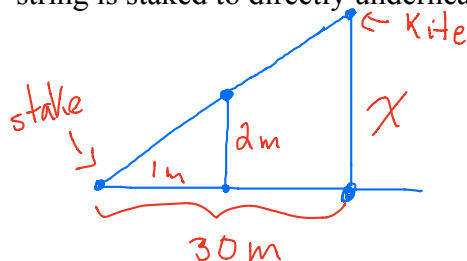
$$\frac{9}{5} = \frac{2+x}{10}$$

$$9(10) = 5(2+x)$$

$$90 = 10 + 5x$$

$$\frac{5x = 80}{5} \Rightarrow x = 16 \text{ ft}$$

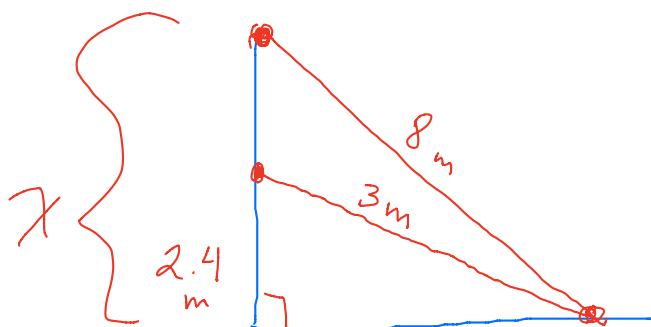
10. You are flying a kite and want to figure out how high it is. You tie the string to the ground and measure out 1 meter and then measure that the string is 2 meters high. The distance from where the string is staked to directly underneath the kite, it is 30 meters.



$$\frac{2}{1} = \frac{x}{30}$$

$$x = 60 \text{ meters}$$

11. Two extension ladders are leaning at the same angle against a vertical wall. The 3-m ladder reaches 2.4 m up the wall. How much farther up the wall does the 8-m ladder reach?



$$\frac{x}{8} = \frac{2.4}{3}$$

$$\frac{3x}{3} = \frac{8(2.4)}{3} \Rightarrow x = 6.4 \text{ meters}$$