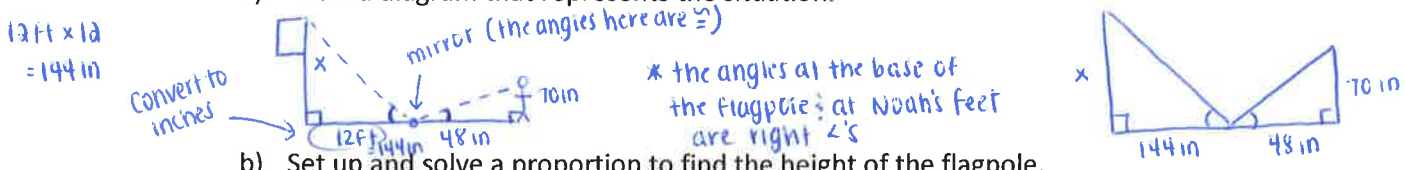




- I can use AA~ to set up and solve proportions.
- I can use AA~ to solve indirect measurement problems in the real world.

1. Noah needs to know the height of a flagpole for a class project. He walks 12 feet away from the pole and places a mirror on the ground. He then walks away from the mirror so that he can see the top of the flagpole in the center of the mirror. The distance from Noah to the mirror is 48 inches and his eyes are 70 inches above the ground. How tall is the flagpole (in feet and inches, rounded to the nearest inch).

a) Draw a diagram that represents the situation.

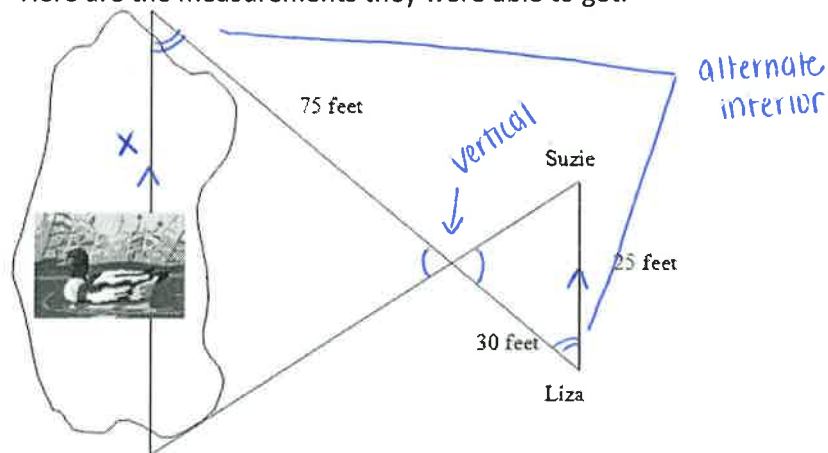


b) Set up and solve a proportion to find the height of the flagpole.

$$\frac{x}{70} = \frac{144}{48} \Rightarrow 48x = 10080$$

$$x = 210 \text{ inches} \div 12 = 17.5 \text{ ft} = \boxed{17 \text{ ft } 6 \text{ inches}}$$

2. Liza and Suzie are feeding ducks by a pond. While they're feeding the ducks, Suzie says to Liza, "I wonder how far it is across that pond." Liza replies, "Wow Suzie, that's a great question! Let's figure it out!" Here are the measurements they were able to get.



a) Assuming that the line across the pond and the line that Liza and Suzie make are parallel, please explain why they will be able to find the distance across the pond.

Since there is a pair of vertical angles and a pair of alternate interior angles, the two triangles are similar by AA~

b) Set up and solve a proportion to find the distance across the pond.

$$\frac{\text{big } \Delta}{\text{sim } \Delta} \quad \frac{x}{25} = \frac{75}{30}$$

$$30x = 1875$$

$$x = 62.5$$

The distance across the pond is 62.5 ft