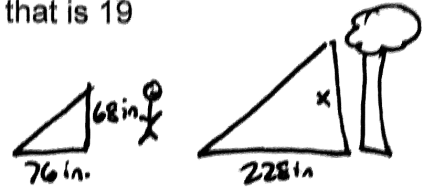Name _____ **Key** _____ Date _____ Class _____

Using Proportional Relationships

Practice and Problem Solving: A/B

DRAW A PICTURE for each situation.

1. Jim is 5 feet, 8 inches tall. He casts a shadow that is 6 feet, 4 inches long. A tree casts a shadow that is 19 feet long. How tall is the tree? **17 ft**
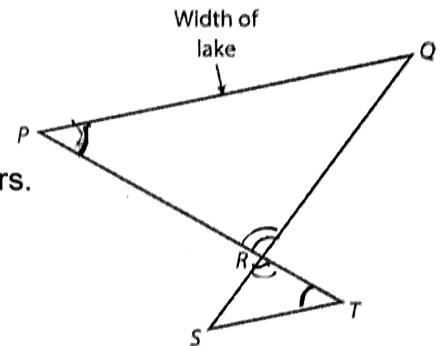
2. Alicia is 5 feet, 4 inches tall. She casts a shadow that is 6 feet long. A tree casts a shadow that is 18 feet long. How tall is the tree?

    16 ft

3. Explain why the triangles in your picture with Alicia are similar.

    _____ rays are parallel + there are two right angles _____

    _____ AA~ _____

$$\frac{68}{76} = \frac{x}{228}$$

$$204 \text{ in} \rightarrow 17 \text{ ft}$$

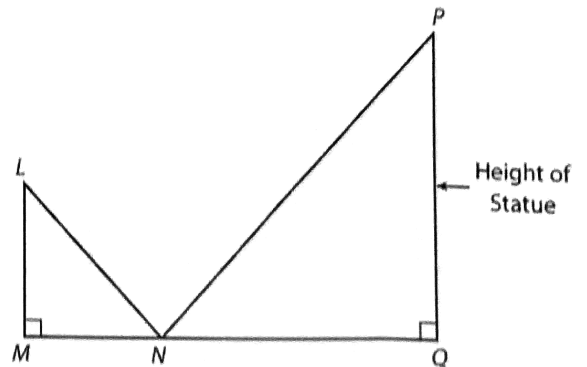(diagram: triangle 76 in., 68 in.; triangle 228 in., x, tree)

Refer to the figure for Problems 4–6. In the figure, $\overline{PQ}$ represents the width of a lake. $\overline{PQ}$ and $\overline{ST}$ are parallel. The figure is not drawn to scale.

Width of lake

4. Suppose $PR = 45$ meters, $RT = 16$ meters, and $ST = 24$ meters. What is the width of the lake? **67.5 m**

5. Suppose $QR = 52$ yards, $RS = 15$ yards, and $ST = 20$ yards. How wide is the lake? **69 yd**

Refer to the figure for Problems 6 and 7. A mirror is placed on the ground, shown by point *N*, so that a person looking at it can see the top of a nearby statue, shown by point *P*. The figure is not drawn to scale.

6. The mirror is placed 30 feet away from the statue, and Jean stands 5 feet from the mirror. If her eyes are 5 feet, 6 inches above the ground, shown by $\overline{LM}$, how tall is the statue? **33 ft**

7. The mirror is placed 5 meters away from the statue and Paul stands 1 meter from the mirror. If his eyes are 1.5 meters above the ground, how tall is the statue? **7.5 m**

Height of Statue