1. A bush is sighted on the other side of a canyon. Find the width of the canyon.

\[ \frac{x}{7.5} = \frac{100}{10} \]

\[ x = 75 \text{ ft} \]

2. A 12-centimeter rod is held between a flashlight and a wall as shown. Find the length of the shadow on the wall if the rod is 45 cm from the wall and 15 cm from the light.

\[ \frac{15}{12} = \frac{60}{x} \]

\[ x = 48 \text{ cm} \]

3. The cheerleaders at Cit High make their own megaphones by cutting off the small end of a cone made from heavy paper. If the small end of the megaphone is to have a radius of 2.5 cm, what should be the height of the cone that is cut off?

\[ \frac{x}{60} = \frac{5}{56} \]

\[ x = \frac{75}{14} \text{ cm} \]

4. Find the width of the Brady River.

\[ \frac{x+15}{x+43} = \frac{8}{15} \]

\[ x = 17 \text{ m} \]

5. The foot of a ladder is 1.2 m from a fence that is 1.8 m high. The ladder touches the fence and rests against a building that is 1.8 m behind the fence. Draw a diagram, and determine the height on the building reached by the top of the ladder.

\[ \frac{x}{3} = \frac{1.8}{1.2} \]

\[ x = 4.5 \text{ m} \]

6. Ramon places a mirror on the ground 45 ft from the base of a geyser. He walks backward until he can see the top of the geyser in the middle of the mirror. At that point, Ramon's eyes are 6 ft above the ground and he is 7.5 ft from the mirror. Use similar triangles to find the height of the geyser.

\[ \frac{x}{45} = \frac{6}{7.5} \]

\[ x = 36 \text{ ft} \]
7. On level ground, the base of a tree is 20 ft from the bottom of a 48-ft flagpole. The tree is shorter than the pole. At a certain time, their shadows end at the same point 60 ft from the base of the flagpole. How tall is the tree?

\[ \frac{x}{48} = \frac{40}{60} \]

\[ x = 32 \text{ ft.} \]

8. A tourist on the observation deck of a building looks east, facing another building 320 ft high and two blocks from the first building. Her view is 400 ft above street level. Her car is parked five blocks east of the second building. If no other buildings intervene, can she see her car?

\[ \frac{x}{400} = \frac{5}{7} \]

\[ x = 285.7 \text{ ft} \]

\[ 320 > 285.7 \]

9. Given: \( SR \parallel UA, UR \parallel GA \)
Prove: \( \triangle SUR \sim \triangle UGA \)

<table>
<thead>
<tr>
<th>Statement</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>( SR \parallel UA )</td>
<td>Given</td>
</tr>
<tr>
<td>( \angle RSU \equiv \angle AUG )</td>
<td>Corresponding ( \angle )'s Thm.</td>
</tr>
<tr>
<td>( UR \parallel GA )</td>
<td>Given</td>
</tr>
<tr>
<td>( \angle SUR \equiv \angle UGA )</td>
<td>Corresponding ( \angle )'s Thm.</td>
</tr>
<tr>
<td>( \triangle SUR \sim \triangle UGA )</td>
<td>AA~</td>
</tr>
</tbody>
</table>

10. Given: \( SN \parallel KL, NO = 2KF, SN = 2KL \)
Prove: \( \triangle SNO \sim \triangle FLK \)

\[ \frac{SN}{KL} \]

Given

\[ \frac{NO}{KF} = 2 \]

Division

\[ \frac{SN}{KL} = 2 \]

Division

\[ \frac{NO}{KF} = \frac{SN}{KL} = 2 \]

Transitive

\[ \triangle SNO \sim \triangle FLK \]