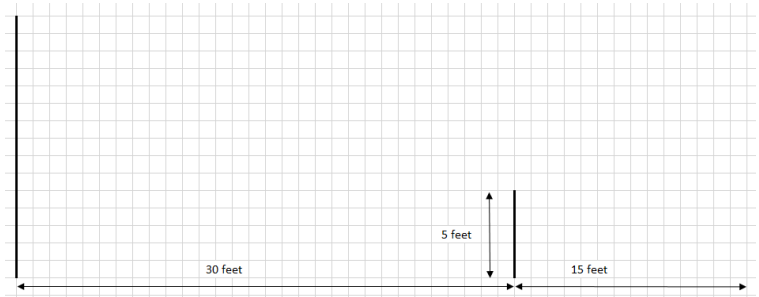


This book has permission to use the "N&K method of COLORS".

17) **Question:** The length of shadow cast by a 5 feet tall vertical rod is 15 feet. The light source is a street lamp. The street lamp is 30 feet from the vertical rod. At what height is the lamp installed in the street lamp.

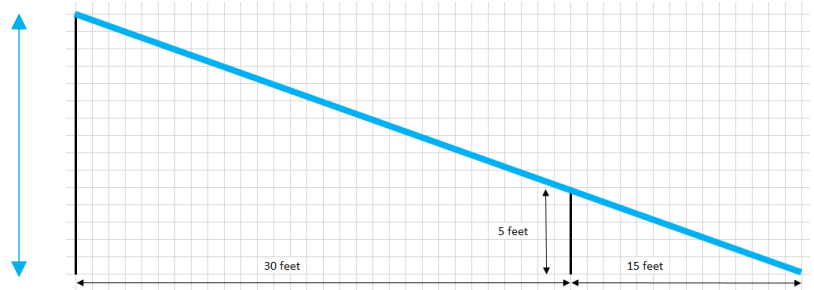


For speed, while solving something similar, only **THINK** the words in blue; **WRITE** only the words in other **COLORS**.

Given: 1) The length of shadow cast by a 5 feet tall vertical rod is 15 feet.
 2) The street lamp is 30 feet from the vertical rod.

Solve: At what height is the lamp installed in the street lamp.?

Height of lamp in the street lamp



Road Map of Solution:

First Step: Use the two similar triangles with the sides, (15 feet) and (30 feet + 15 feet).

Second Step: Solve to get the height of the light source.

First Step: Use the two similar triangles with the sides, (15 feet) and (30 feet + 15 feet).

$$\frac{\text{(height of the light source)}}{\text{(5 feet)}} = \frac{\text{(30 feet+ 15 feet)}}{\text{(15 feet)}}$$

$$\frac{\text{(height of the light source)}}{\text{(5 feet)}} = \frac{\text{(45 feet)}}{\text{(15 feet)}}$$

$$\frac{\text{(height of the light source)}}{\text{(5 feet)}} = \frac{\text{(45 feet)}}{\text{(15 feet)}}$$

$$\frac{\text{(height of the light source)}}{\text{(5 feet)}} = \frac{\text{(3)}}{\text{(1)}}$$

$$\left\{ \frac{\text{(height of the light source)}}{\text{(5 feet)}} \right\} \times \text{(5 feet)} = \left\{ \frac{\text{(3)}}{\text{(1)}} \right\} \times \text{(5 feet)}$$

$$\left\{ \frac{\text{(height of the light source)}}{\text{(5 feet)}} \right\} \times \text{(5 feet)} = \left\{ \frac{\text{(3)}}{\text{(1)}} \right\} \times \text{(5 feet)}$$

$$\left\{ \frac{\text{(height of the light source)}}{\text{(1)}} \right\} \times \text{(1)} = \left\{ \frac{\text{(3)} \times \text{(5 feet)}}{\text{(1)}} \right\}$$

$\left\{ \text{(height of the light source)} \right\} = \left\{ \text{15 feet} \right\} \dots\dots \text{Answer}$
