

Math by Design
Flossville Park Tasks and Subtasks Answer Key

Light the Way!

The lamp posts are in place and the lights are ready to be installed. Mayor Barnum wants the part of the path around the pond, between the two light posts, to be entirely illuminated to keep it safe for joggers. Install the lights that will meet the Mayor's expectations.

Install the lights.

Details:

The lights must illuminate the entire section of the path between the two light posts. To keep the costs down use the smallest radius meeting the requirements.

The same illuminating radius must be used for both lights.

Accepted Answer: Correct light has a radius of 45m. Note that students may simply try each light rather than actually calculate the distance between the lights.

Distance between lights:

$$d^2 = 50^2 + 60^2$$

$$d^2 = 6100$$

$$d \approx 78.1$$

Distance for each light to cover:

$$\frac{\text{Distance between lights}}{2} = \text{radius of light}$$

$$\frac{78.1}{2} = 39.05$$

The light with a radius of 45 meters is sufficient to cover the path.