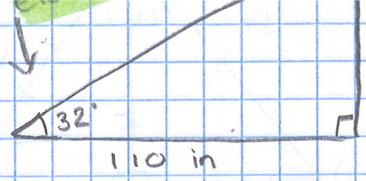

12 in = 1 ft; 5(4×12)+2 = 110 in

I marked Sandy's shadow 110, and the angle of elevation 32°. Then I marked Sandy's height x. In order to find x, I applied what I learned about tangent, a calculator function.

TAN(angle) · adjacent side = opposite side

This works because TAN(angle) = slope of the line. So when you multiply slope by the adjacent side, you get the length of the opposite side. I plugged the values into the formula:

$$TAN(32) \cdot 110 = x$$
$$68.7 \text{ in} = x$$
$$69 \text{ in} \approx x$$

Another way to show how the formula works is to break it down. TAN(angle) = slope TAN(32) = 0.62

Slope = $\frac{\text{opposite}}{\text{adjacent}}$

So set them into proportion: ←

$$\frac{0.62}{1} = \frac{x}{110}$$
$$x = 68.2$$

→ This is less accurate than the formula because TAN(angle) was rounded. That's why it's better to do everything at once rather than step by step.

The rules I learned in this problem are:
- to use TAN(angle) · adj = opp to get the length of the opposite side. Also to use TAN(angle) when finding slope ($\frac{opp}{adj}$)
- I learned to use the formula all at once rather than take it step by step!

This problem is very similar to page 410, #10, except in that problem we dealt with the angle of depression rather than the angle of elevation. Important to remember: The formulas with tangent ONLY apply to right triangles.