

# MathFLIX CHALLENGE

## Proportion: Indirect Measurement

We can measure the heights of some of the tallest things on our street by using their shadows. We know this because we learned in math class that you can use proportions to help you find the measurement of an object.

If we stand our meter stick on the ground, we note that it makes a 25 cm shadow. We set up our first ratio like this:

$$\frac{\text{shadow length of meter stick} = 25\text{cm}}{\text{height of meter stick} = 100\text{cm}}$$

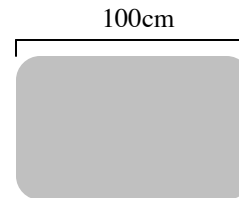
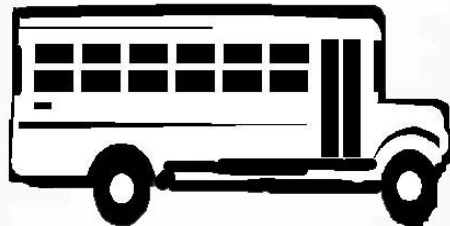


Now, we can create proportions for the other objects we want to measure and cross multiply.

### Example 1: The Bus

$$\frac{100\text{cm}}{\text{height of bus}} = \frac{25\text{cm}}{100\text{cm}} \rightarrow 25\text{cm} \times \text{height of bus} = 100 \times 100$$

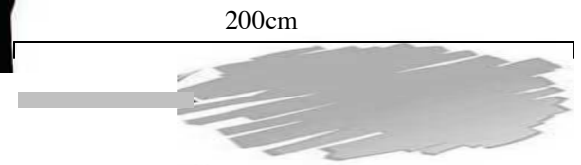
$$\text{height of bus} = \frac{10,000}{25} \rightarrow \text{height of bus} = \underline{\hspace{2cm}} \text{ cm}$$



### Example 2: The Tree

$$\frac{200\text{cm}}{\text{height of tree}} = \frac{25\text{cm}}{100\text{cm}}$$

$$\text{height of tree} = \underline{\hspace{2cm}} \text{ cm}$$



### Example 3: The Apartment Building

$$\text{height of apartment building} = \underline{\hspace{2cm}} \text{ cm}$$

400cm

