

# Lesson 7.5a Scale Drawings

## 7.5b Scale Factor

**scale factor** - a scale without units

i.e.  $\frac{1}{5}$

Ex. 1 A scale model of the Sgt. Floyd Monument is 10 in tall. The actual monument is 100 ft tall.

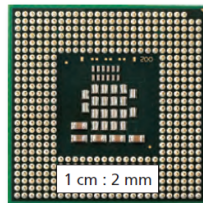


a) What is the scale of the model?

$$\frac{\text{model height}}{\text{actual height}} = \frac{10 \text{ in}}{100 \text{ ft}} = \boxed{\frac{1 \text{ in}}{10 \text{ ft}}}$$

b) What is the scale factor?

$$\frac{1 \text{ in}}{10 \text{ ft}} \cdot \frac{1 \text{ ft}}{12 \text{ in}} = \boxed{\frac{1}{120}}$$



The scale drawing of a computer chip helps you see the individual components on the chip.

a. Find the perimeter and the area of the computer chip in the scale drawing.

$$P = 4s \quad A = s^2$$

$$P = 4(4 \text{ cm}) \quad A = (4 \text{ cm})^2$$

$$\boxed{P = 16 \text{ cm}} \quad \boxed{A = 16 \text{ cm}^2}$$

b. Find the actual perimeter and area of the computer chip.

$$\frac{1 \text{ cm}}{2 \text{ mm}} = \frac{4 \text{ cm}}{x \text{ mm}}$$

$$x = 4.2$$

$$x = 8 \text{ mm}$$

$$P = 4s \quad A = s^2$$

$$P = 4(8 \text{ mm}) \quad A = (8 \text{ mm})^2$$

$$\boxed{P = 32 \text{ mm}} \quad \boxed{A = 64 \text{ mm}^2}$$

units  
m    deci    centi    milli  
1    10    100    1000

c. Find the scale factor

$$\frac{1 \text{ cm}}{2 \text{ mm}} \cdot \frac{10 \text{ mm}}{1 \text{ cm}} = \frac{10}{2} = \boxed{\frac{5}{1} \text{ or } 5}$$