



## Scale Diagrams:

Day 2

Warm Up March 29



1) An original photo of a cat has dimensions 18 cm by 40.5 cm. A second picture is made using a scale factor of 0.4. Determine the dimensions of the scaled picture. (Show your work)

Is this an enlargement or a reduction?

To find lengths of the scale picture:

$$SF = \frac{\text{Scale}}{\text{Org.}}$$

$$\frac{0.4}{1} = \frac{x}{18}$$

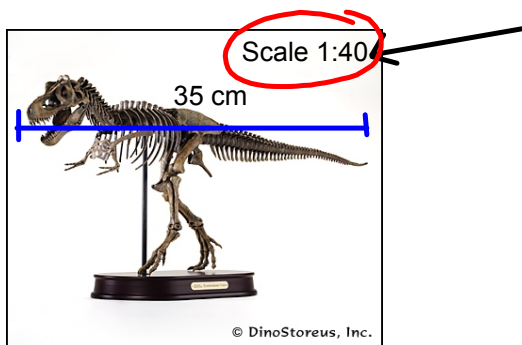
$$x = 7.2 \text{ cm}$$

$$\frac{0.4}{1} = \frac{x}{40.5}$$

$$x = 16.2 \text{ cm}$$

7.2 cm by 16.2 cm

2) The following is a scale diagram of "Sue" the T-Rex. Using the ratio determine the true length of Sue



To find the original size:

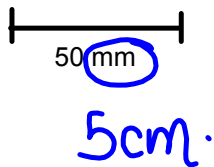
$$\begin{aligned} \text{Scale} &= 1:40 \\ \text{SF} &= \frac{1}{40} \\ \text{SF} &= 0.025 \end{aligned}$$

$$\begin{aligned} \text{SF} &= \frac{\text{Scale}}{\text{Org.}} \\ 0.025 &= \frac{35}{X} \\ \frac{0.025X}{0.025} &= \frac{35}{0.025} \\ X &= 1400\text{cm} \end{aligned}$$

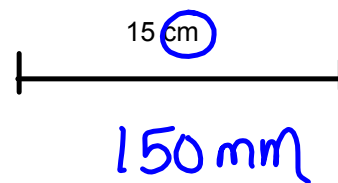
SUE IS A SENSATION. It's not just that she's 42 feet long (14 m) and 65 million years old. She's the world's most complete, best preserved, and largest *Tyrannosaurus rex* skeleton. More than 10,000 visitors went to her May 17, 2000, debut at Chicago's Field Museum of Natural History.



scale



original



Find the Scale FACTOR

Must have same units

$$SF = \frac{\text{Scale}}{\text{Org.}}$$

$$SF = \frac{50}{150}$$

$$SF = 0.\overline{3}$$

$$\frac{5}{15} = 0.\overline{3}$$

$$\begin{aligned}SF &= 0.7 \\ \text{Scale} &= 8 \\ \text{Org} &= ?\end{aligned}$$

$$\begin{aligned}SF &= \frac{\text{Scale}}{\text{Org}} \\ \frac{0.7}{1} &= \frac{8}{X} \\ \frac{0.7X}{0.7} &= \frac{8}{0.7} \\ X &= 11.4\end{aligned}$$

$$SF = 2.4$$

$$\text{Scale} = x$$

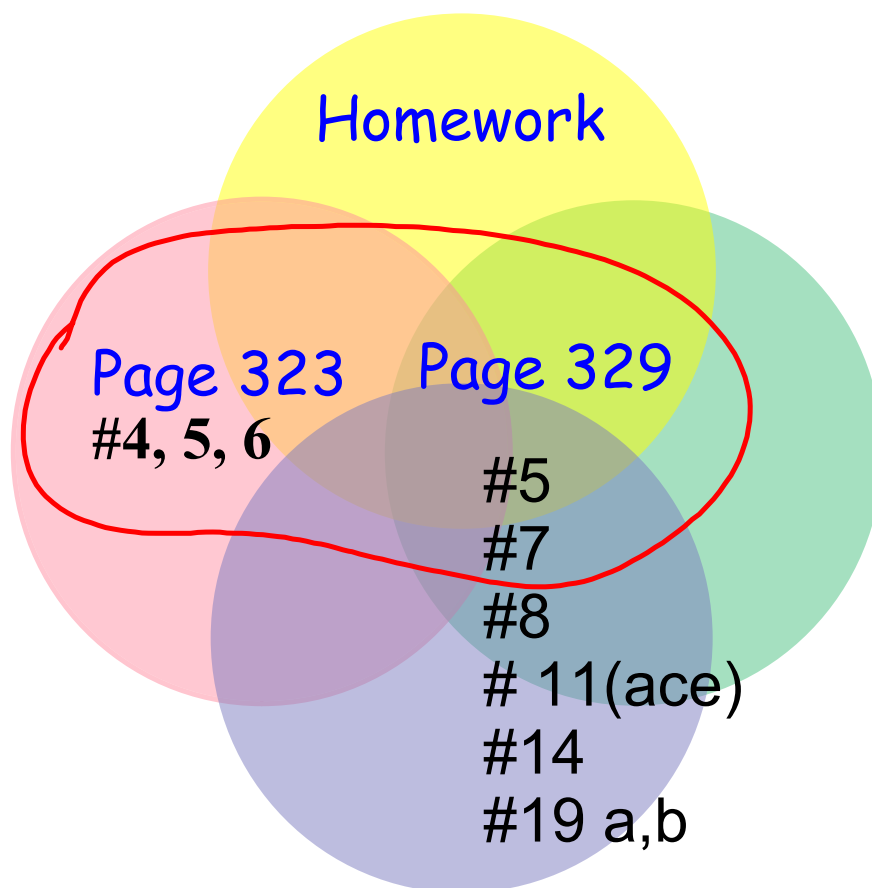
$$\text{Org} = 9$$

$$SF = \frac{\text{Scale}}{\text{Org.}}$$

$$\frac{2.4}{1} = \frac{x}{9}$$

$$x = 21.6$$







# Homework Solutions

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$$4a) \frac{\text{Scale Bottom}}{\text{original Bottom}} = \frac{8}{2} = 4 \qquad \frac{\text{Scale Side}}{\text{original Side}} = \frac{8}{2} = 4$$

Scale factor is 4

$$4b) \frac{\text{Scale Bottom}}{\text{original Bottom}} = \frac{3}{2} = 1.5 \qquad \frac{\text{Scale Side}}{\text{original Side}} = \frac{6}{4} = 1.5$$

Scale factor is 1.5

5)	side length of original	scale factor	calculate length of scale side
a)	12 cm	3	12 cm x 3 = 36 cm
b)	82 mm	5/2	82 mm x 5/2 = 205 mm
c)	1.55 cm	4.2	1.55 cm x 4.2 = 6.51 cm
d)	45 mm	3.8	45 mm x 3.8 = 171 mm
e)	0.8 cm	12.5	0.8 cm x 12.5 = 10 cm

6) Original 17.5 cm by 12.5 cm

$$a) 17.5 \times 12 = 210 \text{ cm}$$

$$12.5 \times 12 = 150 \text{ cm}$$

210 cm by 150 cm

$$b) 17.5 \times 20 = 350 \text{ cm}$$

$$12.5 \times 20 = 250 \text{ cm}$$

350 cm by 250 cm

$$c) 17.5 \times 3.5 = 61.25 \text{ cm}$$

$$12.5 \times 3.5 = 43.75 \text{ cm}$$

61.25 cm by 43.75 cm  
rounded to nearest cm  
61 cm by 44 cm

$$c) 17.5 \times (4.25) = 74.375 \text{ cm}$$

12.5 x 4.25 = 53.125 cm  
Rounded to nearest cm  
74 cm by 53 cm

Here is a scale diagram of back yard which has a scale of **1:125**

If the true dimensions of the pool (in cm) has width 500 cm and length is 937.5 cm, what are the deminsions of the pool on the diagram?

