A SCALE DIAGRAM is an enlargement or a reduction of the original shape

Investigation on Pg 318

$$\frac{6}{3} = 2$$

$$\frac{8}{4} = 2$$

$$\text{Scale Factor} = \frac{\text{New}}{\text{Original}}$$

A scale factor can be expressed as a fraction, ratio, decimal or percent.

7/2 = 7:2 = 3.5 = 350%

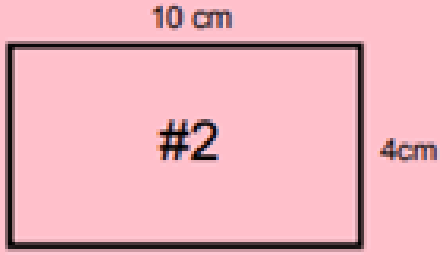
FRACTION: new/original

RATIO: new: original

DECIMAL: use a calculator to divide the fraction

PERCENT: multiply the decimal by 100

If the scale factor below is 2, which rectangle is the original? How do you know?



2 new
1 original

so new is bigger

If the scale factor is > 1, 1.0, or 100% the diagram is an

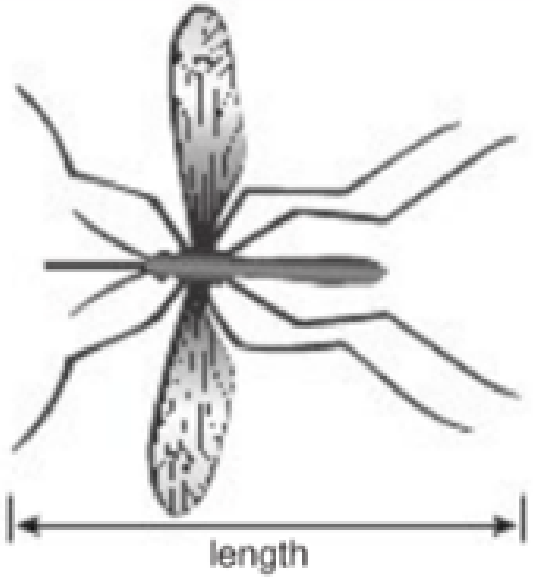
enlargement

If the scale factor is < 1, 1.0, 100% the diagram is a

reduction

PG 320 EXAMPLE #1

This drawing of a mosquito was printed in a newspaper article about the West Nile Virus. The actual length of the mosquito is 12 mm. Determine the scale factor of the diagram.



$\frac{\text{New}}{\text{original}}$

make sure both are mm

$\frac{330}{12} = 27.5$

Sometimes we are given the scale factor and the original dimensions and we have to find the new dimensions

ORIGINAL X SCALE FACTOR = NEW

$\frac{\text{New}}{\text{original}} = \text{scale}$ (original)

PG 320 EXAMPLE #2

This photo of longhouses has dimensions 9 cm by 6 cm.
The photo is to be enlarged by a scale factor of $\frac{7}{2}$.
Calculate the dimensions of the enlargement.

$\frac{9}{1} \times \frac{7}{2} = \frac{63}{2} = 31.5\text{ cm}$

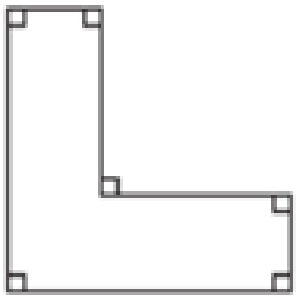
$\frac{6}{1} \times \frac{7}{2} = \frac{42}{2} = 21\text{ cm}$

Enlargement

31.5cm x 21cm

example 3 pg 321

Draw a scale diagram of this metal bracket. Use a scale factor of 1.5.



measure to get original side lengths. Multiply every side by 1.5 and use these #'s to draw the new shape

Corresponding sides: matching sides from the original and the new drawing.
Ex the bottom of both

When ALL THE CORRESPONDING SIDES have the same scale factor then we can say the SIDES ARE PROPORTIONAL

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