Curriculum Outcomes:

(SS3) Demonstrate an understanding of similarity of polygons.

(SS4) Draw and interpret scale diagrams of 2-D shapes.

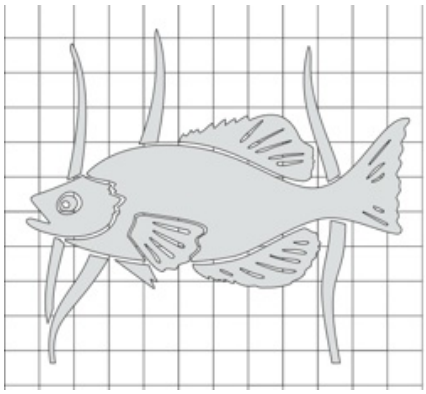
(SS5) Demonstrate an understanding of line and rotation symmetry.

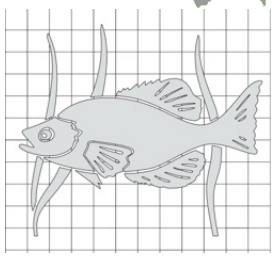
Student Friendly:

How are diagrams related in size? To increase a length by a certain number be it a fraction or a whole number.

Chapter 7:

Similarity and Transformations





Scale Diagrams:

A diagram that is an enlargement or reduction of another diagram.

The measurements in each diagram are compared.

Scale Factor = $\frac{\textit{Length of Scale Diagram}}{\textit{Length of Original Diagram}}$

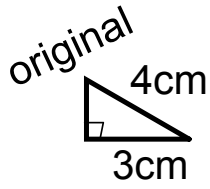
$$SF = \frac{S}{O}$$

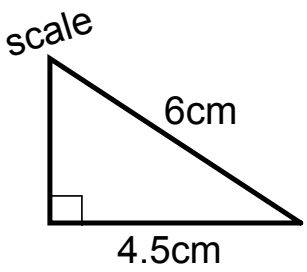
The scale factor can be written as a fraction or decimal.

If the scale factor is less than one, the diagram is a reduction, larger than one indicates the diagram is an enlargement.

When pairs of corresponding lengths have the same scale factor, we say that the

corresponding lengths are proportional.





Hypotenuse

$SF = \frac{S}{O}$

$= \frac{6}{4}$

$= \frac{3}{2}$

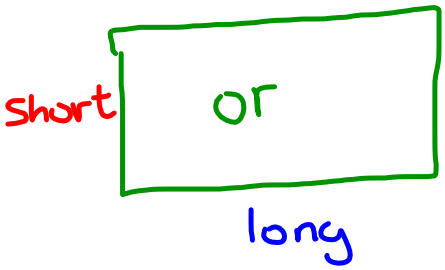
$= 1.5$

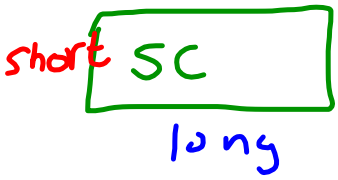
Leg

$SF = \frac{S}{O}$

$= \frac{4.5}{3}$

$= 1.5$


short
or
long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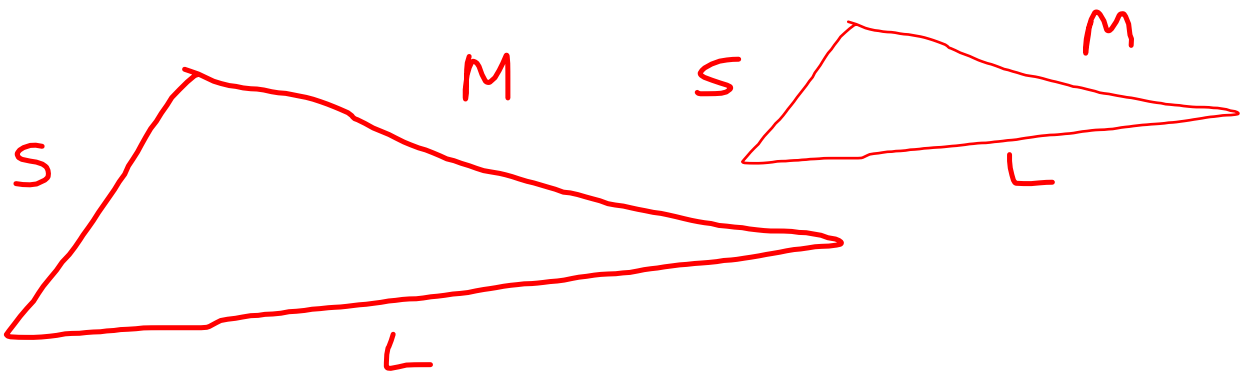
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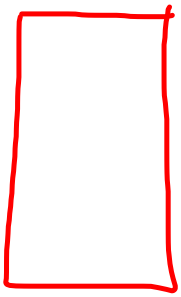


ale factor.

Scale Factor = Scale Diagram / Original Diagram

original

scale

width

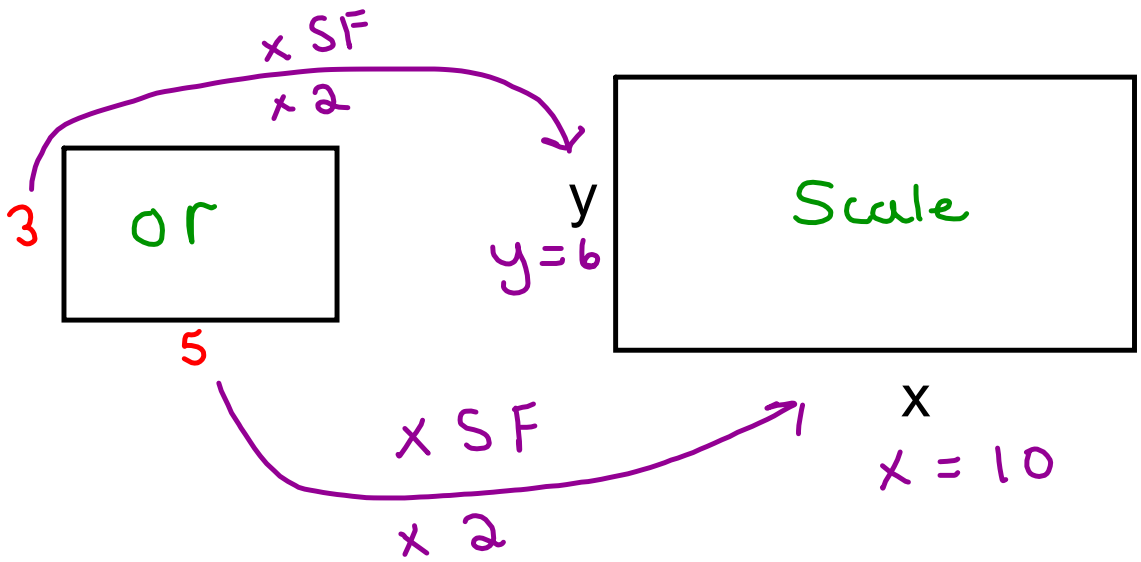
$SF = \frac{5}{10}$

$= \frac{2.5}{3.5}$

$= \frac{25}{35}$

$x = 5.25$

SF = 2



Textbook

x

$SF = \frac{S}{O}$

$2 = \frac{x}{5}$

$x = 2 \times 5$

$x = 10$

y

$SF = \frac{S}{O}$

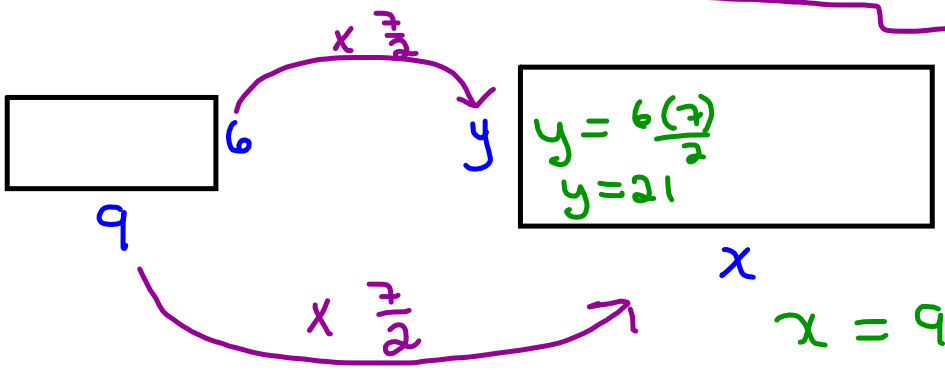
$2 = \frac{y}{3}$

$y = 2 \times 3$

$y = 6$

A photo has dimensions 9 cm by 6 cm.

The photo is to be enlarged by a scale factor of $\frac{7}{2}$.



$x = 9\left(\frac{7}{2}\right)$

$x = 31.5$

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x

$SF = \frac{S}{O}$

$\frac{7}{2} = \frac{x}{9}$

$x = \frac{7(9)}{2}$

$x = 31.5$

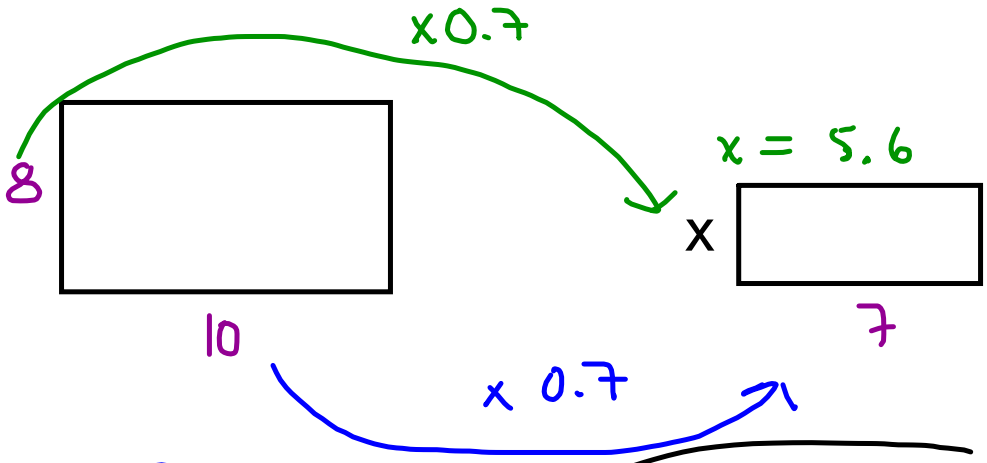
y

$SF = \frac{S}{O}$

$\frac{7}{2} = \frac{y}{6}$

$y = \frac{7}{2}(6)$

$y = 21$



$SF = \frac{S}{O}$

$= \frac{7}{10}$

$= 0.7$

Textbook

$SF = \frac{S}{O}$

$0.7 = \frac{x}{8}$

$x = 8(0.7)$

$x = 5.6$

Sometimes you are only given the scale diagram....

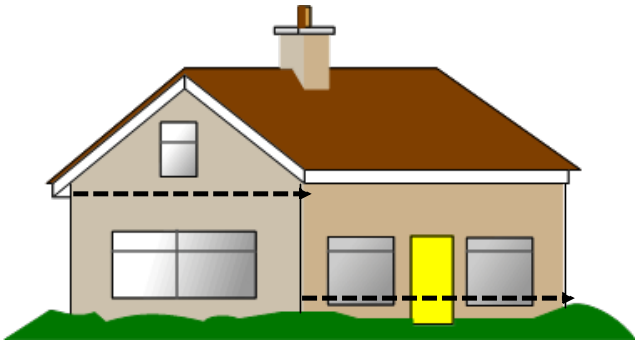
A scale may be given as a ratio.

The scale on this scale diagram of a house is 1:150.

This means that 1cm on the diagram represents 150 cm or 1.5m on the house.

In other words... the scale factor is $\frac{1}{150}$

How wide is the actual house??



1 : 150

S O

1cm : 150 cm

x3 ↓ ↓ x3

3cm : y

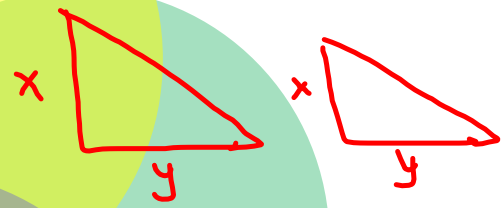
y = 450

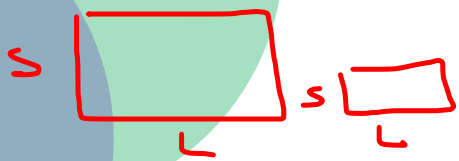
Homework

Page 323

#4,5, 6,

11,12





5) $\frac{s}{7} = \frac{5}{0}$

$\frac{x}{12} = 3$