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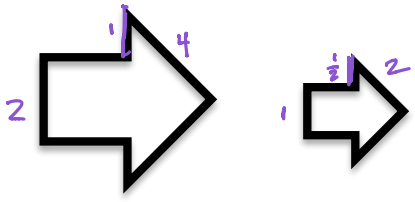
LEARNING OBJECTIVE: We will relate scale drawings to ratios and rates. (G7M4L11)

CONCEPT DEVELOPMENT:

map, scale model, blueprint

Scale Drawing: A drawing in which all lengths between points and figures in the drawing are reduced or enlarged **PROPORTIONAL** to the lengths in the actual picture.

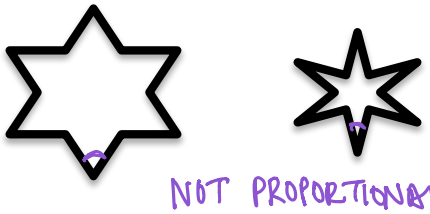
Example:



ORIGINAL

REDUCTION by 50%

Non-example:



NOT PROPORTIONAL
NOT SAME SHAPE
NOT SCALE DRAWING

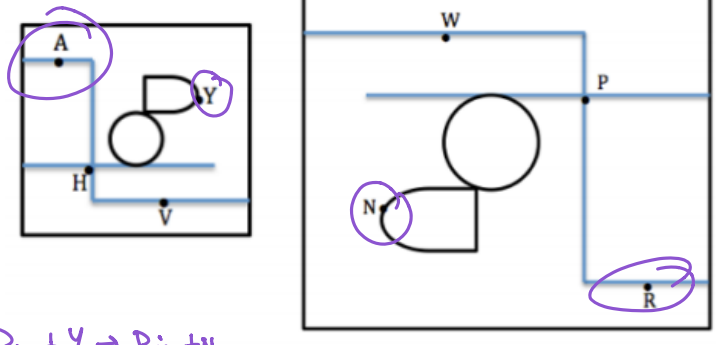
Reduction: The lengths in the scale drawing are smaller than those in the actual object or picture.
Example: Blueprints

map, models (like solar system), TV?, painting, hot wheel

Enlargement/Magnification: The lengths in the scale drawing are larger than those in the actual object or picture.
Example: Pictures on cereal boxes, magnifying glasses.

"size enlarged to show texture" caricature

One-to-One Correspondence: Each point in one figure corresponds to one and only one point in the second figure.



Point Y → Point N
Point A → Point R

ENLARGEMENT

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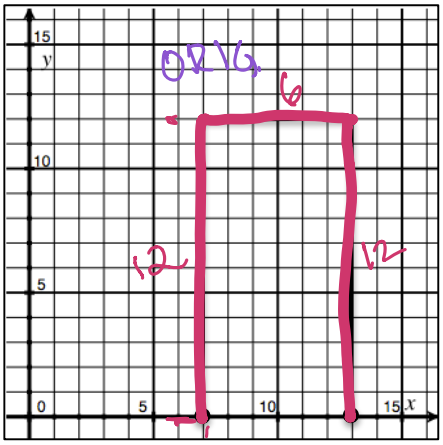
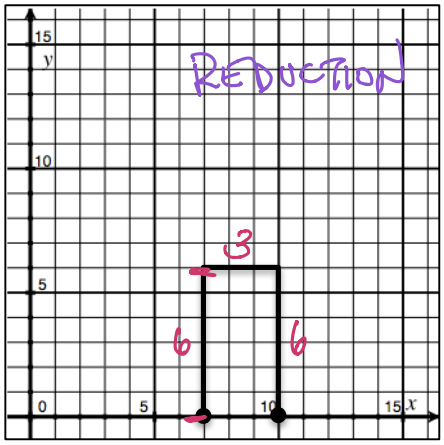
GUIDED PRACTICE:

Steps for Examining Scale Drawings

1. Carefully study original and second picture to determine if the second is a scale drawing.
2. Identify the scale drawing (if the two drawings are to scale) as either a reduction or enlargement.
3. If possible, determine the constant of proportionality that exists.

Are the two images drawn to scale? YES!





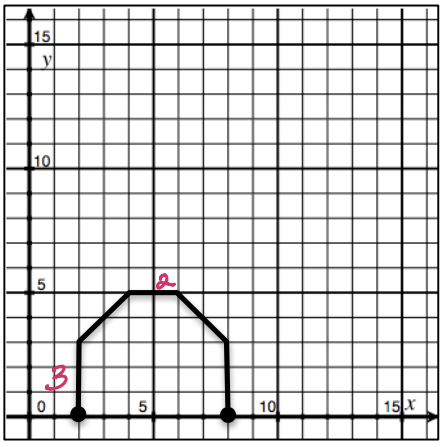
Is the picture on the right a reduction or an enlargement of the original on the left? REDUCTION

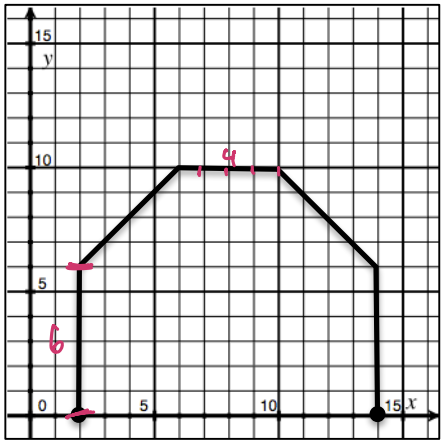
What is the constant of proportionality? "k" $\frac{1}{2}$

"$y = kx$"

SCALE = $\frac{1}{2}$(ORIGINAL)

Are the two images drawn to scale? YES





Is the picture on the right a reduction of enlargement of the original on the left? ENLARGEMENT

What is the constant of proportionality? 2

SCALE = 2 × ORIG.

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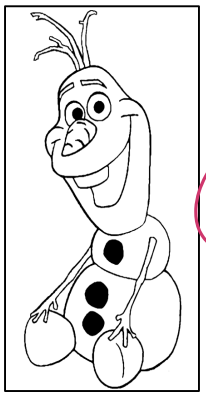
Are the two images drawn to scale?

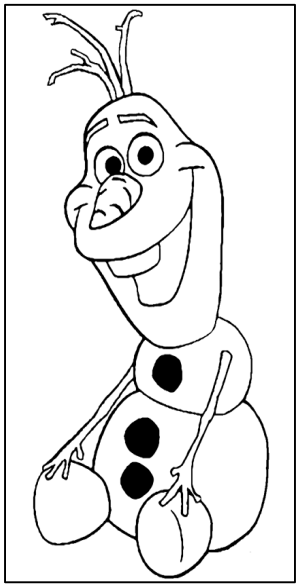
ORIG



2 in.

1 in.

ENLARGEMENT (SCALE)



3 in

$1\frac{1}{2}$ in

Is the image on the right an enlargement or a reduction of the original on the left?

ENLARGEMENT

What is the constant of proportionality? $\frac{3}{2}$ or 1.5

Are the two images drawn to scale?

No.

$2\frac{1}{2}$ in.

$2\frac{1}{2}$ in.

3 in

2 in.

Corresponding sides are NOT proportional.

$\frac{2\frac{1}{2}}{3} \neq \frac{2\frac{1}{2}}{2}$

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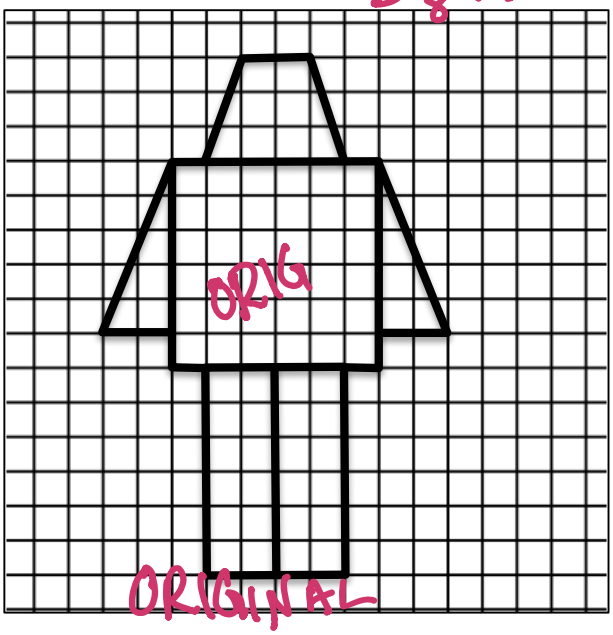
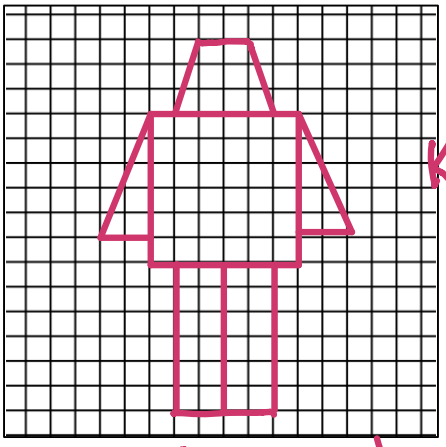
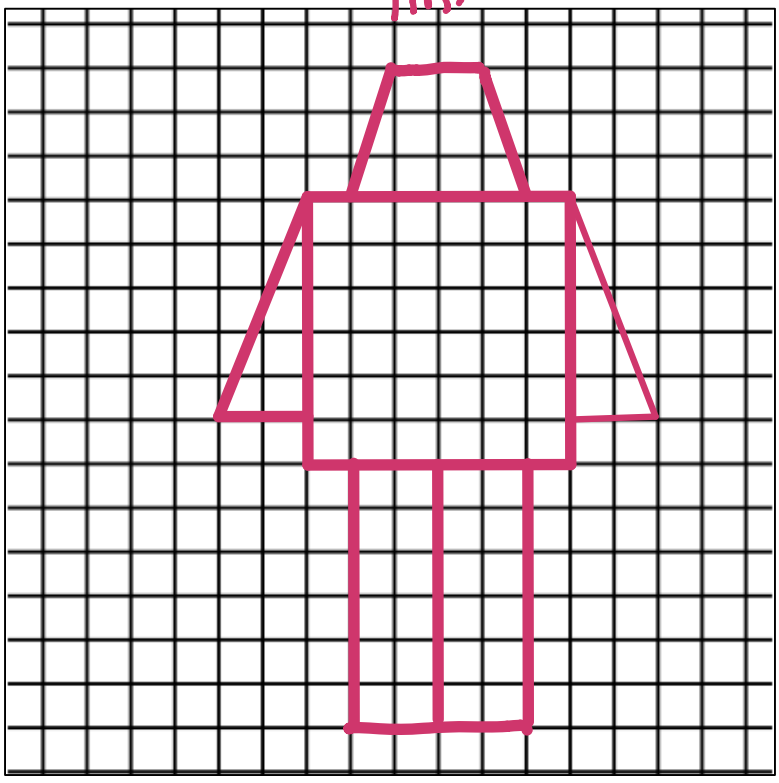
Create scale drawings of the robot using the grids provided below.







$2\frac{1}{4} : 3\frac{1}{8} = \frac{18}{25}$

$3\frac{1}{8} \div 2\frac{1}{4} = \frac{25}{8} \div \frac{9}{4} = \frac{25}{8} \times \frac{4}{9}$

$\frac{25}{18}$

$K = \frac{18}{25}$

$K = \frac{\text{ENLARGE}}{\text{ORIG.}}$

$K = \frac{4}{3\frac{1}{8}} = \frac{4}{1} \div \frac{25}{8}$

$\frac{4}{1} \div \frac{25}{8} = \frac{4}{1} \cdot \frac{8}{25}$

$= \frac{32}{25}$

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Independent Practice:

Use Exit Ticket from Lesson 16 Module 1 as independent practice
Manually add closure question below.

Activating Prior Knowledge:

We can identify a unit rate easily…

Colleen was able to make 5 peanut butter and jelly sandwiches in 7 minutes and 30 seconds. How many peanut butter and jelly sandwiches can she make in one hour?	Colleen was able to make 5 peanut butter and jelly sandwiches in 7 minutes and 30 seconds. How many minutes does it take her to make one peanut butter and jelly sandwich?

Closure:

How are scale drawings related to rates and ratios?

Notes:

No homework…lesson aligns to Module 1, Lesson 16