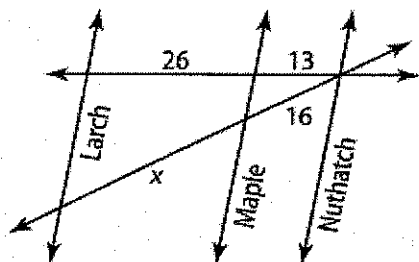


January 14, 2014

7.6 Warm-Up

1.

MAPS In the figure, Larch, Maple, and Nuthatch Streets are all parallel. The figure shows the distances in between city blocks. Find x .



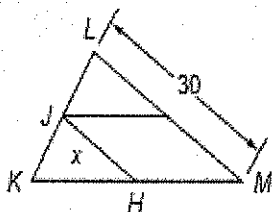
$$\frac{13}{26} = \frac{16}{x}$$

$$13x = 416$$

$$\boxed{x = 32}$$

3.

JH is a midsegment of $\triangle KLM$. Find the value of x .



$$\frac{30}{2} = \boxed{15}$$

2.

If $JK = 7$, $KH = 21$, and $JL = 6$, find LI .



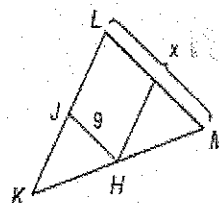
$$\frac{7}{6} = \frac{21}{x}$$

$$7x = 126$$

$$\boxed{x = 18}$$

4.

JH is a midsegment of $\triangle KLM$. Find the value of x .



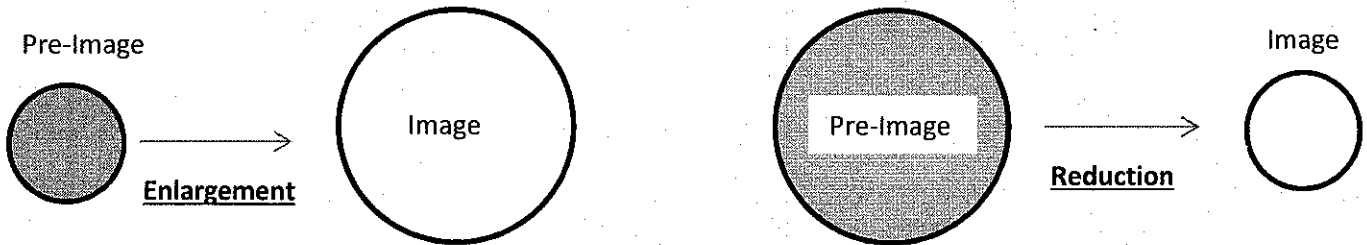
$$9 \cdot 2 = x$$

$$x = 18$$

7.6 Similarity Transformations

Target: Identify similarity transformations
and apply transformation properties to real
life problems

Dilation- is a transformation that enlarges or reduces the original figure proportionally. **Original image** -> **Preimage** **New figure** -> **Image**

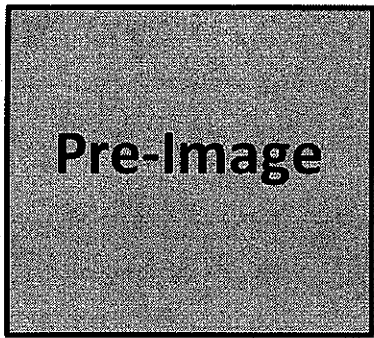


Scale factor of dilation- describes the dilation. The letter **K** usually represents the scale factor.

To Find K.

$$\frac{\text{Image (Created Image) Side Length}}{\text{Pre - Image (Original Image) Side Length}}$$

K < 1 is a reduction



5 in

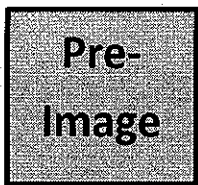


1 in

$$K = \frac{1}{5} \quad K < 1$$

reduction

K > 1 is an enlargement



1 in



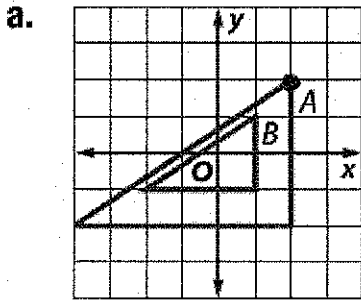
5 in

$$K = \frac{5}{1} \quad K > 1$$

enlargement

1 Determine whether the dilation from Figure A to Figure B is an enlargement or a reduction. Then find the scale factor of the dilation.

Image
Pre-Image

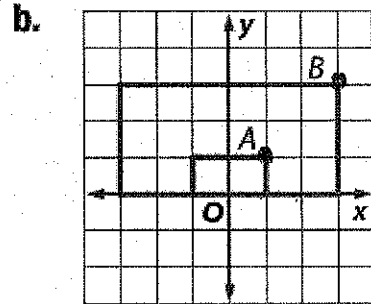


$A \rightarrow B$

Preimage \rightarrow Image
A (2,2) B (1,1)

$$k < 1 \quad \frac{1}{2} \text{ reduction}$$

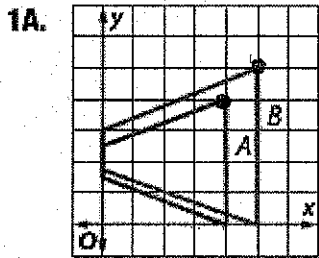
Guided Practice



$A \rightarrow B$

Pre-image \rightarrow Image
A (1,1) B (3,3)

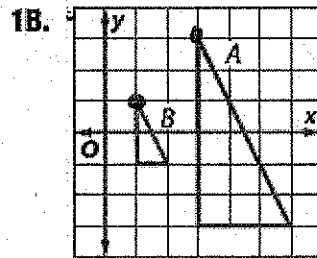
$$\frac{I}{PI} = \frac{3}{1} \text{ Enlargement } k > 1$$



$A \rightarrow B$

PI \rightarrow I
(4,4) (5,5)

$$\frac{I}{PI} = \frac{5}{4} \text{ Enlargement}$$



$A \rightarrow B$

PI \rightarrow I
(3,3) (1,1)

$$\frac{I}{PI} = \frac{1}{3} \text{ Reduction}$$

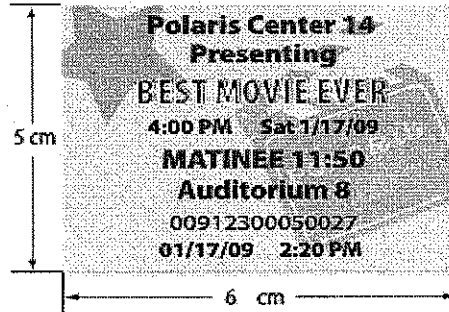
Why is this important?

- Graphic Design

Real-World Example 2 Find and Use a Scale Factor

COLLECTING

By what percent should Adriana enlarge the ticket stub so that the dimensions of its image are 3 times that of her original? What will be the dimensions of the enlarged image?



$$k = 3$$

$$300\%$$

$$5(3) = 15 \text{ cm}$$
$$6(3) = 18 \text{ cm}$$

$$15 \text{ cm by } 18 \text{ cm}$$

Real-World Example 2 Find and Use a Scale Factor

PHOTOCOPYING A photocopy of a receipt is 1.5 inches wide and 4 inches long. By what percent should the receipt be enlarged so that its image is 2 times the original? What will be the dimensions of the enlarged image?

$$k = 2$$
$$200\%$$

$$1.5(2) = 3 \text{ in}$$
$$4(2) = 8 \text{ in}$$

$$3 \text{ in by } 8 \text{ in}$$

Real-World Example 2 Check Your Progress

PHOTOGRAPHS Mariano wants to enlarge a picture he took that is 4 inches by 7.5 inches. He wants it to fit perfectly into a frame that is 400% of the original size. What will be the dimensions of the enlarged photo?

- A. 15 inches by 25 inches
- B. 8 inches by 15 inches
- C. 12 inches by 22.5 inches
- D. 16 inches by 30 inches

$$4(4) = 16 \text{ in}$$
$$7.5(4) = 30 \text{ in}$$