

Name: KEY

Date: \_\_\_\_\_

Topic: Dilations

Class/Subject: Intro to Algebra

QUESTIONS/MAIN IDEAS

NOTES

Dilation →

Scale Factor →

What type of Dilation?

How do you find the scale factor?

A transformation that results from the reduction or enlargement of a figure.

Reduce - get smaller  
enlarge - get larger

The ratio of the original and new dimensions.

(You always MULTIPLY by the scale factor)

Two types of dilations:

- 1. Enlargement - scale factor is  $> 1$
  - 2. Reduction - scale factor is  $< 1$  but not  $< 0$
- $0 < sf < 1$

Ex 1) Scale Factor = 0.8 → Reduction

Ex 2) Scale Factor = 4.2 → Enlargement

Ex 3) Scale Factor = 1.1 → Enlargement

You take the "new" coordinate and divide it by the "old".

Ex 4)  $A(2,3) \ B(5,7) \ C(8,4) \ \rightarrow \ A'(4,6) \ B'(10,14) \ C'(16,8)$

*(Handwritten arrows show x2 from A to A', B to B', and C to C')*

What scale factor was used to dilate the original image? **2**

Express algebraically:  $(x, y) \rightarrow (2x, 2y)$

Ex 5)  $A(10,8) \ B(4,8) \ C(2,4) \ \rightarrow \ A'(5,4) \ B'(2,4) \ C'(1,2)$

*(Handwritten arrows show x0.5 from A to A', B to B', and C to C')*

What scale factor was used to dilate the original image? **.5 or 1/2**

Express algebraically:  $(x, y) \rightarrow (\frac{1}{2}x, \frac{1}{2}y)$

Ex 6) Apply the given scale factor to the coordinates: S.F. = 3

$-2 \cdot 3 = -6$ ;  $6 \cdot 3 = 18$

$A(-2,6) \ \rightarrow \ A'(-6, 18)$

$B(-4,-3) \ \rightarrow \ B'(-12, -9)$

$C(-6,8) \ \rightarrow \ C'(-18, 24)$

Express algebraically:  $(x, y) \rightarrow (3x, 3y)$

If it says "reduced by" - subtract that number from 100 and that will be your scale factor.

Make sure you change it to a decimal before you multiply it by your coordinates.

Ex 7) Reduced by 40% →  $100\% - 40\% = 60\%$  / so your scale factor would be **.6**

Ex 8) Reduced by 75% →  $100\% - 75\% = 25\%$  / so your scale factor would be **.25**

Summary: