Determine the effects of dilations by modeling the dilation on the coordinate plane, Practice Set B

Name _____

Date _____

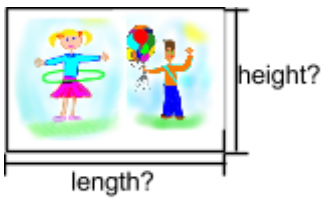
1. An L-shaped logo is represented on a coordinate grid with coordinates A(0, 0), B(16, 0), C(16, 8), D(8, 8), E (16, 24) and F(0, 24). In order to create business cards, you dilate the logo using a scale factor of ¼.

a. What are the coordinates of the image of ABCDEF? Show all work.

b. If the perimeter of the image is 20 units, what is the perimeter of the original figure?

c. What is the area of the image?

2. You are enlarging your family portrait by a scale factor of 1.5. The original picture is 5 *in* by 7 *in*. What are the dimensions and area of the enlarged photo?



Determine the effects of dilations by modeling the dilation on the coordinate plane, Practice Set B Answer Key

1. An L-shaped logo is represented on a coordinate grid with coordinates A (0, 0), B(16, 0), C(16, 8), D(8, 8), E (8, 24) and F(0, 24). In order to create business cards, you dilate the logo using a scale factor of ¼.

a. What are the coordinates of the image of ABCDEF? Show all work.

A (0, 0) → (0(¼), 0(¼)) → A' (0, 0)

B (16, 0) → (16(¼), 0(¼)) → B' (4, 0)

C (16, 8) → (16(¼), 8(¼)) → C' (4, 2)

D (8, 8) → (8(¼), 8(¼)) → D' (2, 2)

E (8, 24) → (8(¼), 24(¼)) → E' (2, 6)

F (0, 24) → (0(¼), 24(¼)) → F' (0, 6)

b. If the perimeter of the image is 20 units, what is the perimeter of the original figure?

Perimeter of ABCDEF (scale factor) = Perimeter of A'B'C'D'E'F'

¼(x) = 20

x=60

c. What is the area of the image?

There are a number of ways students may answer this. They can find the area of the original and multiply their answer by (¼)², or they will likely find the area of the image using the graph and breaking the L up into two rectangles.

Rectangle 1 = 2 x 4 = 8 units

Rectangle 2 = 2 x 4 = 8 units

Area of L = 8 + 8 = 16 $units^2$.

2. You are enlarging your family portrait by a scale factor of 1.5. The original picture is 5 *in* by 7 *in*. What are the dimensions and area of the enlarged photo?

Dimensions of enlarged photo:

length = 7(1.5) = 10.5 *in*

height = 5(1.5) = 7.5 *in*

Area of enlarged photo: 10.5(7.5) = 78.75 in^2.