

1. **Multiple choice** Which of the following transformations is a dilation?

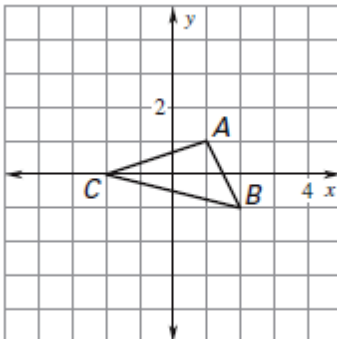
- A. $(x, y) \rightarrow (2x, y)$
- B. $(x, y) \rightarrow (x + 2, y + 2)$
- C. $(x, y) \rightarrow (7x, 7y)$
- D. $(x, y) \rightarrow (x, y - 2)$

2. Dilate the following with respect to the origin.

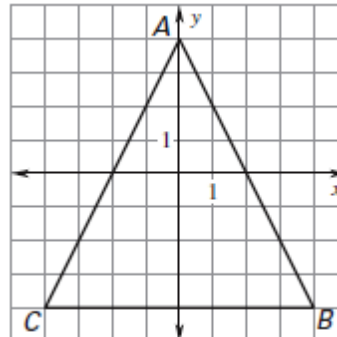
- a) $(x, y) \rightarrow (5x, 5y)$
 $(-1, 3) =$ _____
- b) $(x, y) \rightarrow \left(-\frac{2}{3}x, -\frac{2}{3}y\right)$
 $(6, 9) =$ _____
- c) $(x, y) \rightarrow (3x, 3y)$
 $(0, 5) =$ _____

3. Draw the dilation of the figure using the given scale factor with respect to the origin. Describe the effect of the scale factor.

a) $(x, y) \rightarrow (2x, 2y)$



b) $(x, y) \rightarrow \left(-\frac{1}{4}x, -\frac{1}{4}y\right)$

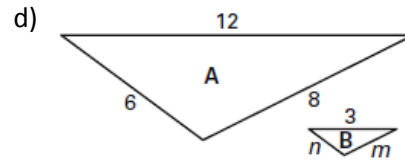
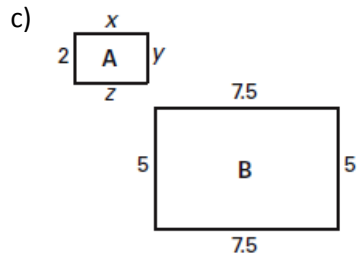
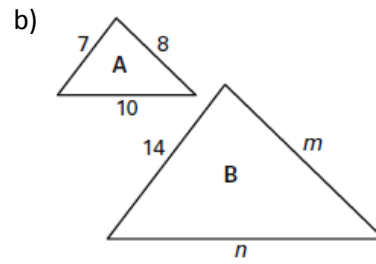
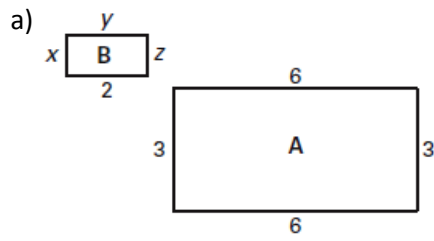


4. Triangle HJM has vertices H(-36, 0), J(0, 20) and M(0, 0). Triangle H'J'M' has two vertices H'(-9, 0) and M'(0, 0), and $\Delta H'J'M'$ is a dilation image of ΔHJM centered at the origin. Find the coordinates of J' and the scale factor of the dilation.

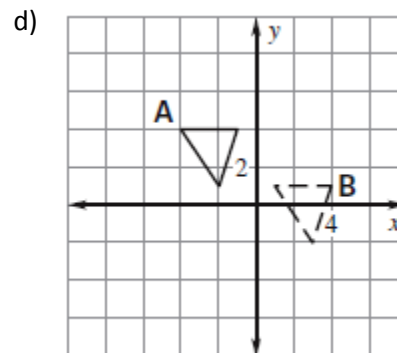
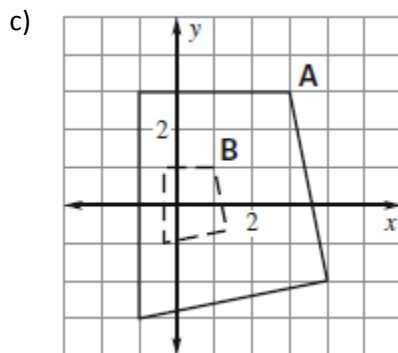
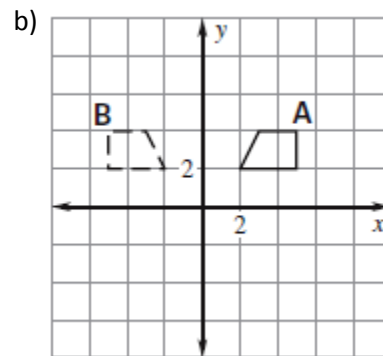
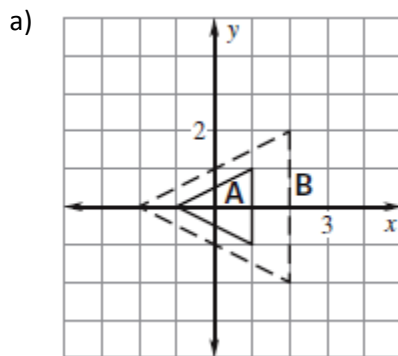
5. **Multiple Choice** A triangle has vertices H(-4, 2), J(-8, 6) and K(0, 6). If ΔABC is a dilation image of ΔHJM centered at the origin, which of the following are possible vertices of ΔABC ?

- A) A(-4, 3), B(-2, 1), C(0, 3)
- B) A(-2, 1), B(-4, 3), C(0, 3)
- C) A(-2, 4), B(0, 6), C(-2, 8)
- D) A(-2, 4), B(-8, 6), C(-4, 2)

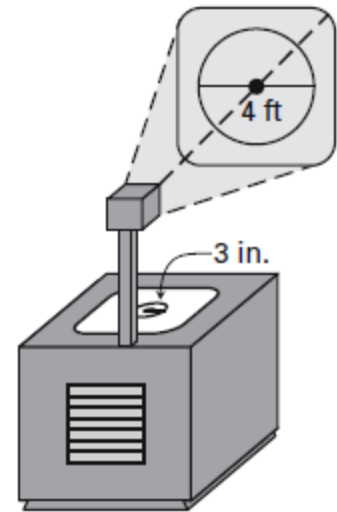
6. Determine whether the dilation from Figure A to Figure B is a reduction or an enlargement. Then find the values of the variables.



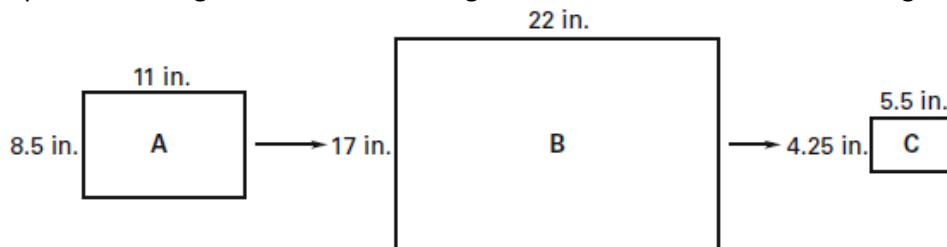
7. Determine whether the transformation from Figure A to Figure B is a translation, reflection, rotation, or dilation.



8. Your teacher draws a circle on an overhead projector. The projector then displays an enlargement of the circle on the wall. The circle drawn has a radius of 3 inches. The circle on the wall has a diameter of 4 feet. What is the scale factor of the enlargement?



9. A poster is enlarged and then the enlargement is reduced as shown in the figure below.



- What is the scale factor of the enlargement? The reduction?
- A second poster is reduced directly from size A to size C. What is the scale factor of the reduction?
- How are the scale factors in part (a) related to the scale factor in part (b)?

Answer Key :

- C
- a. $(-5, 15)$ b. $(-4, -6)$ c. $(0, 15)$
- a. $A'(2, 2), B'(4, -2), C'(0, -4)$ b. $A'(0, -1), B'(-1, 1), C'(1, 1)$ 4) $J'(0, 5)$ 5) B
- a. $x=1, y=2, z=1$, scale : $\frac{1}{3}$ b. $m=16, n=20$, scale : 2 c. $x=3, y=2, z=3$, scale : $\frac{5}{2}$ d. $n=1.5, m=2$, scale : $\frac{1}{4}$
- a. Dilation b. Reflection c. Dilation d. Translation 8) $k=8$
- a. Enlargement : $k=2$, Reduction : $k=\frac{1}{4}$ b. $k=\frac{1}{2}$ c. Double from $A \rightarrow B$, Half from $A \rightarrow C$