State whether a dilation with the given scale factor is a reduction or an enlargement.

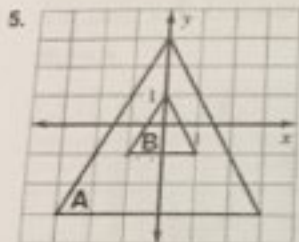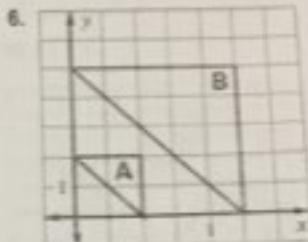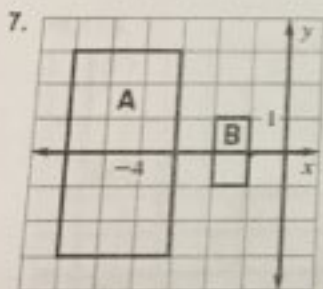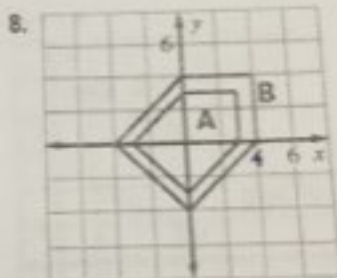1. $k = 3$

    E

2. $k = \frac{1}{2}$

    R

3. $k = \frac{5}{4}$

    E

4. $k = 0.93$

    R

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

5.

Reduction $k = \frac{1}{3}$

6.

E $k = \frac{5}{2}$

7.

R $k = \frac{1}{3}$

8.

E $k = \frac{4}{3}$

Point A is a vertex of a polygon. Point R is the image of A after the dilation. Find the scale factor of the dilation

9. A (3, 4) and R (9, 12)

    3

10. A (9, 12) and R (6, 8)

    $\frac{2}{3}$

11. A (-2, -3) and R (-10, -15)

    5

A line segment has the given endpoints. Use the scale factor to write the ordered pairs after the dilation.

12. A(1,1), B (3, 1), and k = 2
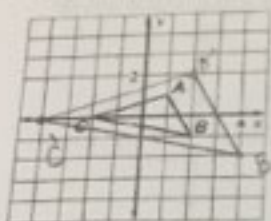
  $(2,2)$ $B(6,2)$

13. A(4,4), B(8, 12), and k = ¾

  $A'(3,3)$ $B'(6,9)$

14. A(0, 0), B(-3, 2), and k = 5

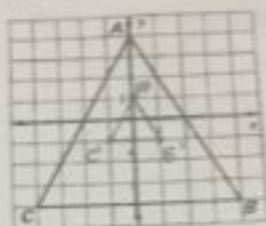 $A'(0,0)$ B

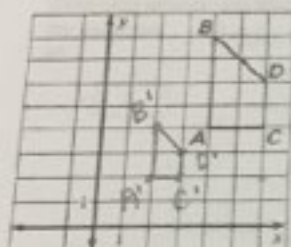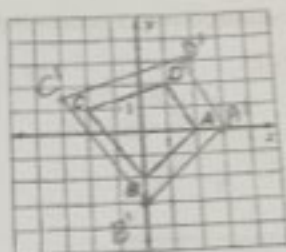Draw a dilation of the figure using the given scale factor.

15. $k = 2$

16. $k = \frac{1}{2}$

17. $k = \frac{1}{2}$

18. $k = 1\frac{1}{2}$

$A(2,0) \Rightarrow A'(3,0)$
$D(1,2) \to D'(1.5,3)$
$C(-2,1) \to C'(-3,1.5)$
$B(0,-2) \to B'(0,-3)$

19. $k = 2$

$B(2,2)$

$A(2,0)$

20. $k = \frac{1}{2}$

$A(2,4)$

$B(6,2)$

21. $k = 3$

$A(-1,1)$

$B(1,1)$

$C(-1,0)$

22. $k = 1/3$

$A(0,0)$

$B(3,3)$

$C(6,0)$
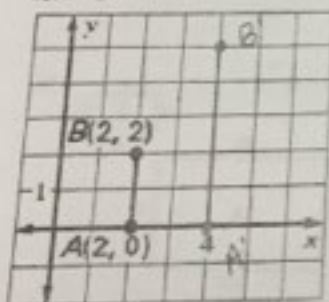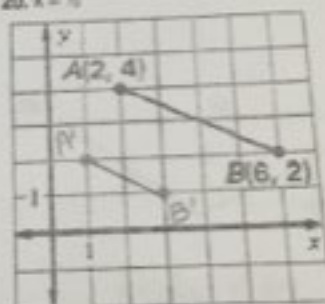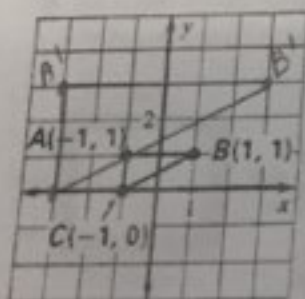
$D(3,-3)$
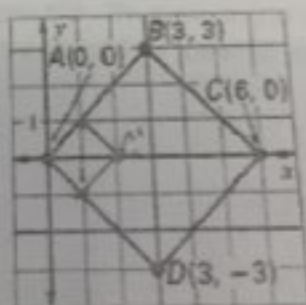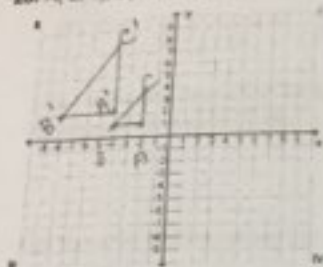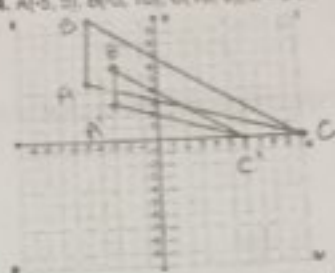
Draw a dilation of the polygon with the given vertices using the given scale factor. Plot the ordered pairs on the coordinate plane AND the dilation.
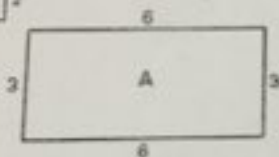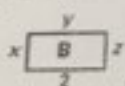
23. $A(-2, 1), B(-4, 1), C(-2, 4); k = 2$

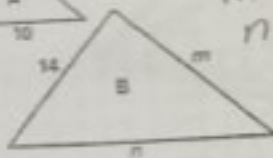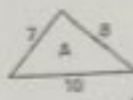24. $A(-5, 5), B(-5, 10), C(10, 0); k = 3/5$

Determine whether the dilation from Figure A to Figure B is a reduction or an enlargement. Then, find the values of the variables.
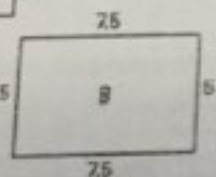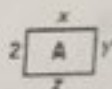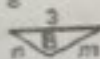
25. Reduction
$x = 1, y = 2, z = 1$

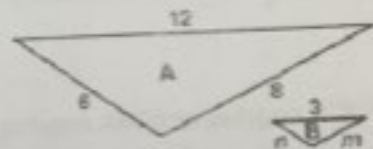26. Enlargement
$m = 16$
$n = 20$

27. Enlargement
$x = 3$
$y = 2$
$z = 3$

28. Reduction $n = 1.5$
$m = 2$

29. The screen on your old television is 20 inches wide and 15 inches high. The screen on your new widescreen television is 16 inches wide and 9 inches high. Is the screen on your new TV a dilation of the screen on your old TV? Explain.
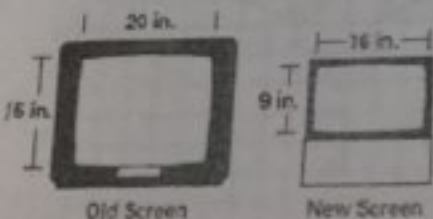
$\frac{20}{16} = \frac{5}{4}$

$\frac{15}{9} = \frac{5}{3}$

It is <u>not</u> a dilation since the sides are not proportional, and therefore it is NOT similar.

Old Screen — 20 in. wide, 15 in. high

New Screen — 16 in. wide, 9 in. high

Name:_____ Date:_____

## Dilations Practice

1. Triangle PQR has coordinates $P(2,4), Q(-2,4), R(0,-6)$. Write the coordinates of the vertices of the image of a triangle after a dilation of 1.5.

$$P'(3,6), Q'(-3,6), R'(0,-9)$$

2. How does the size of an image compare to the original figure when the original figure undergoes a dilation with a scale factor of one? **Same**
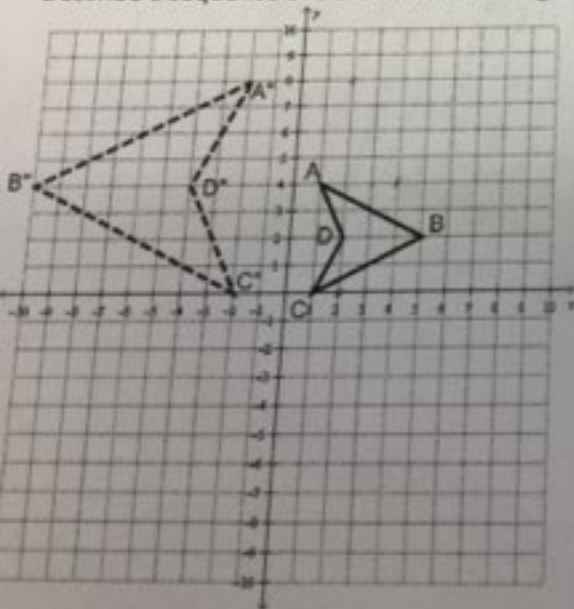
3. On the grid below, draw the image of $\triangle FGH$ after a dilation with a scale factor of $\frac{1}{2}$.
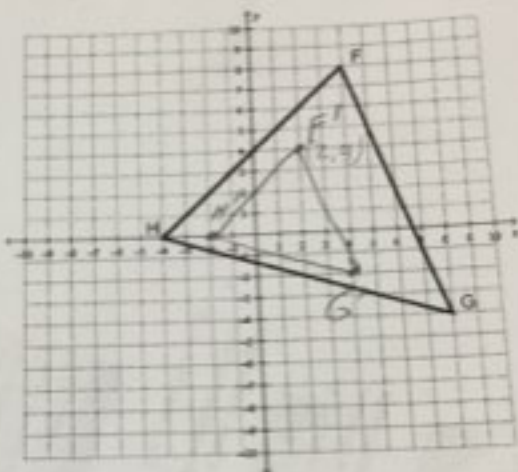
What will be the coordinates of point F'' after a translation of polygon $F'G'H'$ two units to the left and four units up?

Answer **(0, 8)**

Describe a sequence of transformations to get from polygon ABCD to polygon A"B"C"D".

Scale ABCD by factor of 2 to get A'B'C'D'. Reflect A'B'C'D over the Y axis to get A"B"C"D"