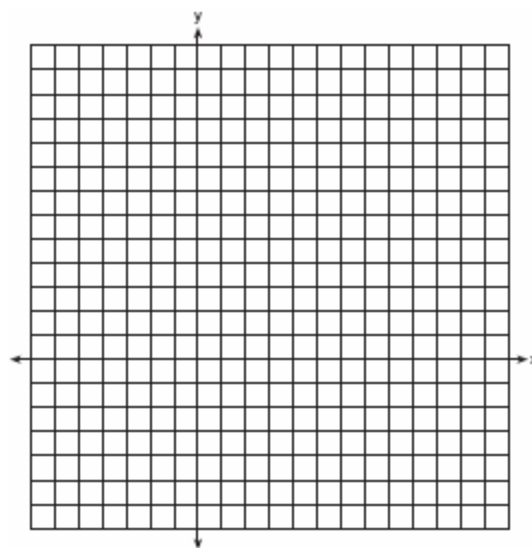


G.G.58: Define, investigate, justify, and apply similarities (dilations and the composition of dilations and isometries)

1. 060013a, P.I. G.G.58
Which transformation does *not* always produce an image that is congruent to the original figure?
[A] rotation [B] translation
[C] dilation [D] reflection
2. 080611a, P.I. G.G.58
Which transformation does *not* always result in an image that is congruent to the original figure?
[A] reflection [B] translation
[C] dilation [D] rotation
3. 060603a, P.I. G.G.58
One function of a movie projector is to enlarge the image on the film. This procedure is an example of a
[A] line of symmetry [B] translation
[C] line reflection [D] dilation
4. 010210b, P.I. G.G.58
Which transformation is *not* an isometry?
[A] $r_{y=x}$ [B] D_2 [C] $T_{3,6}$ [D] $R_{0,90^\circ}$
5. 080308b, P.I. G.G.58
Which transformation is *not* an isometry?
[A] translation [B] rotation
[C] dilation [D] line reflection
6. 010725a, P.I. G.G.58
The image of point A after a dilation of 3 is $(6,15)$. What was the original location of point A ?
[A] $(2,5)$ [B] $(9,18)$
[C] $(3,12)$ [D] $(18,45)$

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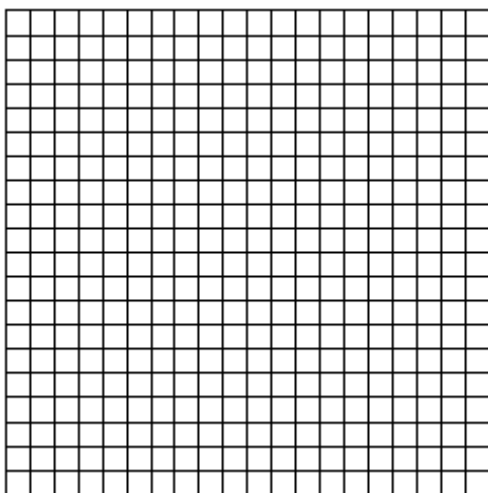
7. 010311b, P.I. G.G.58
In which quadrant would the image of point $(5, -3)$ fall after a dilation using a factor of -3 ?
[A] I [B] II [C] IV [D] III
8. 080711b, P.I. G.G.58
Under a dilation with respect to the origin, the image of $P(-15,6)$ is $P'(-5,2)$. What is the constant of dilation?
[A] 10 [B] -4 [C] 3 [D] $\frac{1}{3}$
9. 010803b, P.I. G.G.58
Under a dilation where the center of dilation is the origin, the image of $A(-2, -3)$ is $A'(-6, -9)$. What are the coordinates of B' , the image of $B(4,0)$ under the same dilation?
[A] $(12,0)$ [B] $(-12,0)$
[C] $(-4,0)$ [D] $(4,0)$
10. 080128a, P.I. G.G.58
On the accompanying set of axes, graph $\triangle ABC$ with coordinates $A(-1,2)$, $B(0,6)$, and $C(5,4)$. Then graph $\triangle A'B'C'$, the image of $\triangle ABC$ after a dilation of 2.



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11. 010937a, P.I. G.G.58

On the accompanying grid, graph and label quadrilateral $ABCD$, whose coordinates are $A(-1,3)$, $B(2,0)$, $C(2,-1)$, and $D(-3,-1)$. Graph, label, and state the coordinates of $A'B'C'D'$, the image of $ABCD$ under a dilation of 2, where the center of dilation is the origin.



12. 060831b, P.I. G.G.58

The engineering office in the village of Whitesboro has a map of the village that is laid out on a rectangular coordinate system. A traffic circle located on the map is represented by the equation $(x+4)^2 + (y-2)^2 = 81$. The village planning commission asks that the transformation D_2 be applied to produce a new traffic circle, where the center of dilation is at the origin. Find the coordinates of the center of the new traffic circle. Find the length of the radius of the new traffic circle.

13. 060911b, P.I. G.G.58

Using a drawing program, a computer graphics designer constructs a circle on a coordinate plane on her computer screen. She determines that the equation of the circle's graph is $(x-3)^2 + (y+2)^2 = 36$. She then dilates the circle with the transformation D_3 . After this transformation, what is the center of the new circle?

- [A] (6,-5) [B] (9,-6)
[C] (-6,5) [D] (-9,6)

14. 010532a, P.I. G.G.58

Fran's favorite photograph has a length of 6 inches and a width of 4 inches. She wants to have it made into a poster with dimensions that are similar to those of the photograph. She determined that the poster should have a length of 24 inches. How many inches wide will the poster be?

15. 089918a, P.I. G.G.58

The ratio of the corresponding sides of two similar squares is 1 to 3. What is the ratio of the area of the smaller square to the area of the larger square?

- [A] 1:3 [B] 1:9 [C] $1:\sqrt{3}$ [D] 1:6

16. 060322a, P.I. G.G.58

The lengths of the sides of two similar rectangular billboards are in the ratio 5:4. If 250 square feet of material is needed to cover the larger billboard, how much material, in square feet, is needed to cover the smaller billboard?

G.G.58: Define, investigate, justify, and apply similarities (dilations and the composition of dilations and isometries

[1] C

[2] C

[3] D

[4] B

[5] C

[6] A

[7] B

[8] D

[9] A

[3] $\triangle ABC$ and $\triangle A'B'C'$, $A'(-2,4)$, $B'(0,12)$, $C'(10,8)$, are graphed correctly.

[2] $\triangle ABC$ is graphed correctly, but only two image points are graphed correctly.

or [2] $\triangle ABC$ is graphed incorrectly, but $\triangle A'B'C'$, is graphed appropriately, based on an incorrect $\triangle ABC$.

[1] Only $\triangle ABC$ is graphed correctly.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[10] incorrect procedure.

[3] Quadrilateral $ABCD$ and its image are graphed and labeled correctly, and the coordinates of $A'B'C'D'$ are stated as $(-2,6)$, $(4,0)$, $(4,-2)$, and $(-6,-2)$.

[2] Appropriate work is shown, but one computational or graphing error is made.

or [2] Quadrilateral $A'B'C'D'$ is graphed and labeled correctly, and its coordinates are stated correctly, but quadrilateral $ABCD$ is not graphed.

[2] Quadrilateral $ABCD$ is graphed incorrectly, but an appropriate image is graphed and labeled, and the appropriate coordinates of $A'B'C'D'$ are stated.

or [2] Both quadrilaterals are graphed correctly, and the coordinates of $A'B'C'D'$ are stated correctly, but one or both of the quadrilaterals are not labeled.

or [2] Both quadrilaterals are graphed and labeled correctly, but the coordinates of $A'B'C'D'$ are not stated or are stated incorrectly.

[1] Appropriate work is shown, but two or more computational or graphing errors are made.

or [1] Appropriate work is shown, but one conceptual error is made.

or [1] Both quadrilaterals are graphed correctly but neither is labeled, and the coordinates of $A'B'C'D'$ are not stated or are stated incorrectly.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[11] incorrect procedure.

[4] (-8, 4) and 18, and appropriate work is shown.

[3] Appropriate work is shown, but one computational error is made.

[2] Appropriate work is shown, but two or more computational errors are made.

or [2] Appropriate work is shown, but one conceptual error is made, such as using an incorrect dilation.

or [2] The center and radius are found appropriately for an incorrect center and radius of the original equation.

or [2] (-8, 4), and appropriate work is shown, but no further correct work is shown.

[1] Appropriate work is shown, but one conceptual error and one computational error are made.

or [1] 18, and appropriate work is shown, but no further correct work is shown.

or [1] (-8, 4) and 18, but no work is shown.

[0] (-8, 4) or 18, but no work is shown.

or [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an

[12] obviously incorrect procedure.

[13] B

[2] 16, and appropriate work is shown, such

as $\frac{6}{4} = \frac{24}{x}$ or a labeled diagram.

[1] Appropriate work is shown, but one computational error is made.

or [1] Appropriate work is shown, but one conceptual error is made.

or [1] An incorrect proportion is written, but it is solved appropriately.

or [1] 16, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[14] incorrect procedure.

[15] B

[2] 160, and appropriate work is shown, such as the proportion $\frac{25}{16} = \frac{250}{x}$.

[1] Appropriate work is shown, but one computational error or one conceptual error is

made, such as $\frac{5}{4} = \frac{250}{x}$.

or [1] 160, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[16] incorrect procedure.
