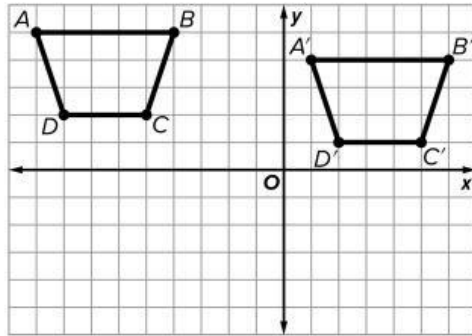


Unit 2

Unit Assessment: Form A

Answer each question.

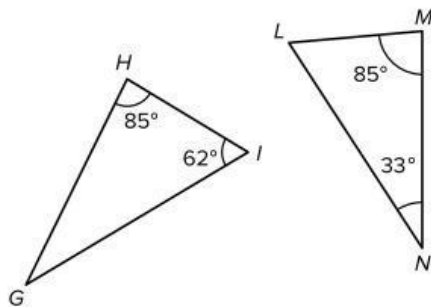
1. Trapezoid $ABCD$ represents the location of a picture on Sandy's wall. Sandy moves the picture to a new location, shown by trapezoid $A'B'C'D'$.



Describe the translation of the picture.

Trapezoid $ABCD$ is translated 10 units to the right and 1 unit down.

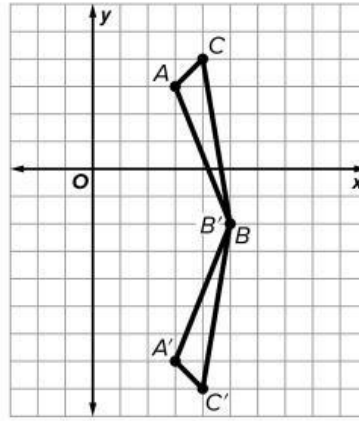
2. Consider triangles GHI and LMN .



Determine if the two triangles are similar. If so, write the similarity statement.

yes; Sample answer: Both triangles have angle measures of 33° , 62° , and 85° . $\triangle GHI \sim \triangle NML$

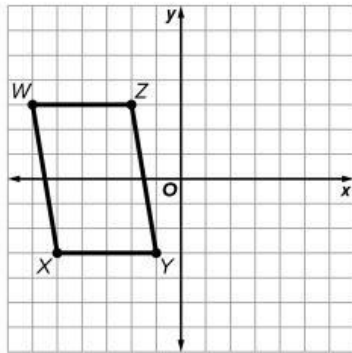
3. Consider the graph of $\triangle ABC$ and its image $\triangle A'B'C'$.



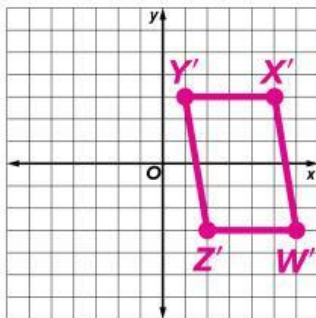
Which statements about the transformation shown are true? Select all that apply.

- ☐ A. $\triangle A'B'C'$ is the image of a reflection of $\triangle ABC$ across the x -axis.
- ☒ B. $\triangle A'B'C'$ is the image of a reflection of $\triangle ABC$ across the line $y = -2$.
- ☒ C. The x -coordinates of the vertices of $\triangle ABC$ and its image $\triangle A'B'C'$ are the same.
- ☐ D. The x -coordinates of the vertices of $\triangle ABC$ and its image $\triangle A'B'C'$ are opposites.
- ☐ E. The y -coordinates of the vertices of $\triangle ABC$ and its image $\triangle A'B'C'$ are the same.
- ☐ F. The y -coordinates of the vertices of $\triangle ABC$ and its image $\triangle A'B'C'$ are opposites.

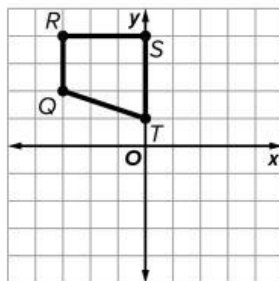
4. Parallelogram $WXYZ$ is rotated 180° counterclockwise about the origin.



Graph the image of the rotation on the coordinate plane.



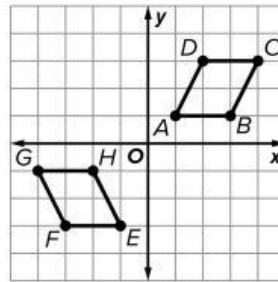
5. Trapezoid $QRST$ represents a game piece. Jim rotates the trapezoid so that point R' is located at $(4, 3)$.



Which describes the rotation that was performed?

- A. 270° counterclockwise about point T
 B. 180° counterclockwise about point T
 C. 180° clockwise about the origin
 D. 90° clockwise about the origin

6. Consider quadrilaterals $ABCD$ and $EFGH$.



What transformations are used to show that the two quadrilaterals are congruent? Explain.

Sample answer: $ABCD$ is reflected over the y -axis and then translated down 4 units. The sequence of transformations does not change the size of $ABCD$ and all 4 vertices map onto $EFGH$.

7. Triangle QRS has vertices $Q(2, 4)$, $R(5, 4)$ and $S(4, 1)$. Triangle TUV has vertices $T(6, 4)$, $U(9, 4)$ and $V(8, 1)$. Determine if $\triangle QRS$ and $\triangle TUV$ are congruent. Explain your reasoning using transformations.

Sample answer: A translation 4 units to the right maps $\triangle QRS$ onto $\triangle TUV$, so $\triangle QRS$ is congruent to $\triangle TUV$.

8. Triangle JKL has vertices $J(3, -7)$, $K(7, -3)$ and $L(3, 7)$. What are the coordinates of point J after a 270° rotation counterclockwise about the origin?

$J'(-7, -3)$

9. Figure $ABCD$ has vertices $A(-2, -2)$, $B(1, 1)$, $C(0, 4)$, and $D(-3, 5)$. The figure is translated 2 units to the right and 1 unit down. Then it is translated 3 units to the left and 4 units up. What are the coordinates of image $A''B''C''D''$ after both translations?

$A''(-3, 1)$

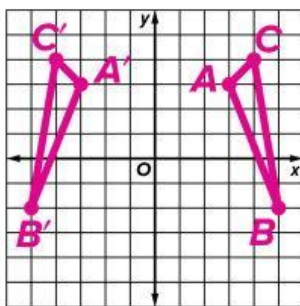
$B''(0, 4)$

$C''(-1, 7)$

$D''(-4, 8)$

10. Triangle ABC has coordinates $A(3, 3)$, $B(5, -2)$, and $C(4, 4)$.

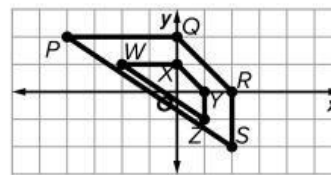
Part A Graph the preimage and image of the triangle after it is reflected across the y -axis.



Part B Explain how to write the coordinates of the vertices of the reflected triangle.

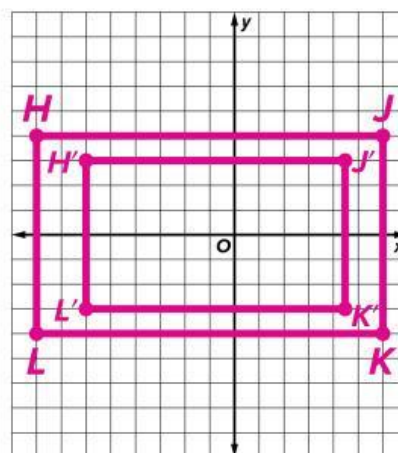
Sample answer: Use the rule $(x, y) \rightarrow (-x, y)$. Point A becomes $A'(-3, 3)$, point B becomes $B'(-5, -2)$ and point C becomes $C'(-4, 4)$.

11. Which statement accurately describes the dilation of quadrilateral $PQRS$? Select all that apply.

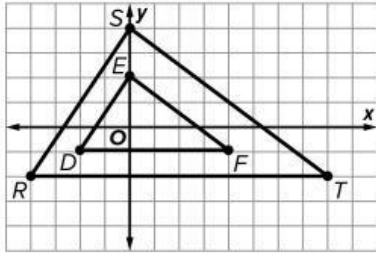


- A. The coordinates of quadrilateral $PQRS$ are half of the coordinates of quadrilateral $WXYZ$.
- ☒ B. The coordinates of quadrilateral $PQRS$ are twice the coordinates of quadrilateral $WXYZ$.
- C. The dilation is an enlargement.
- ☒ D. The dilation is a reduction.
- E. Quadrilateral $PQRS$ is dilated by a scale factor of 2.
- ☒ F. Quadrilateral $PQRS$ is dilated by a scale factor of $\frac{1}{2}$.

12. A figure has vertices $H(-8, 4)$, $J(6, 4)$, $K(6, -4)$, and $L(-8, -4)$. Graph the figure and the image of the figure after a dilation with a scale factor of $\frac{3}{4}$.



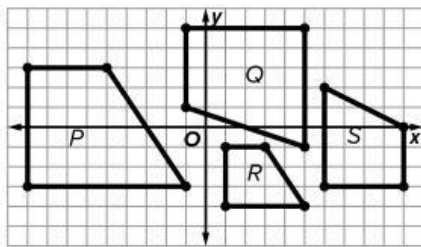
13. Consider triangles RST and DEF .



Why are the triangles similar?
Describe the transformation in your answer.

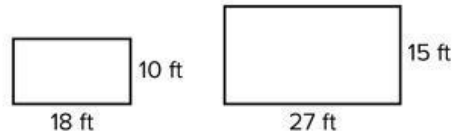
Sample answer: Triangles DEF and RST are similar because a dilation with a scale factor of $\frac{1}{2}$ reduces the size of $\triangle RST$ so each vertex maps onto $\triangle DEF$.

14. Which figures represent a pair of similar figures?



- A. P and Q
B. P and R
 C. R and S
 D. Q and S

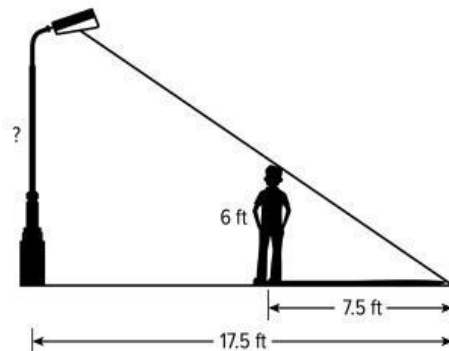
15. A farmer is planning to fence in a smaller plot of land for her sheep and a larger plot of land for her cows.



Are these similar shapes? Explain.

yes; Sample answer: The side lengths are in proportion to each other. The sides of the larger plot are 1.5 times greater than the sides of the smaller plot.

16. A street light pole casts a 17.5-foot shadow. At the same time, Mr. Brennen casts a 7.5-foot shadow.



If Mr. Brennen is 6 feet tall, what is the height of the street light pole?

14 feet

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