

Translations (Part 1)

Name: _____ Date: _____

Slide every vertex the same direction and distance. Draw the image and label it with prime marks (A' , B' , ...).

1. Translate the figure 6 units left and 5 units down.

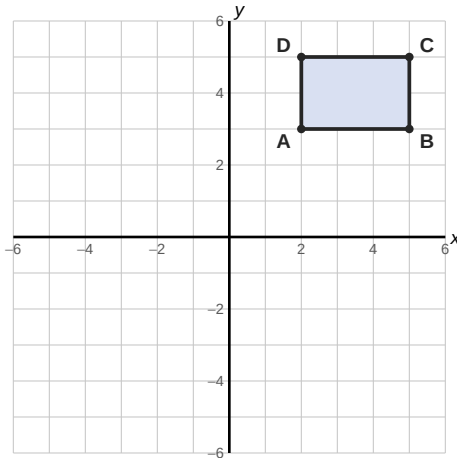


Image coordinates:

A' (,)

B' (,)

C' (,)

D' (,)

Original:

A (2, 3)

B (5, 3)

C (5, 5)

D (2, 5)

2. Translate using the rule $(x, y) \rightarrow (x - 2, y - 2)$.

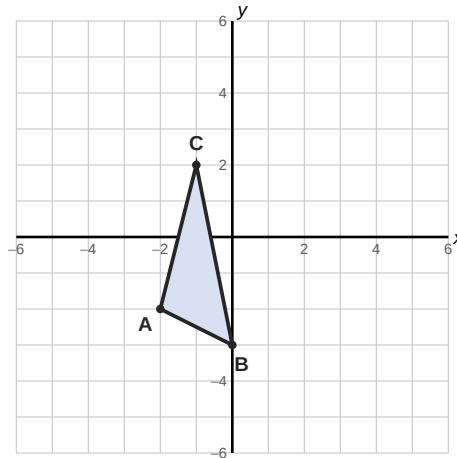


Image coordinates:

A' (,)

B' (,)

C' (,)

Original:

A (-2, -2)

B (0, -3)

C (-1, 2)

3. Translate the figure 3 units left and 2 units up.

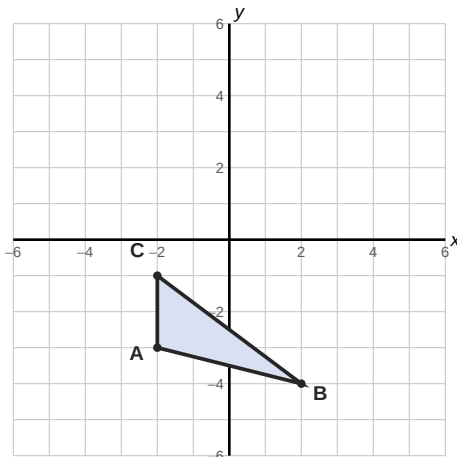


Image coordinates:

A' (,)

B' (,)

C' (,)

Original:

A (-2, -3)

B (2, -4)

C (-2, -1)

4. Translate using the rule $(x, y) \rightarrow (x - 5, y - 6)$.

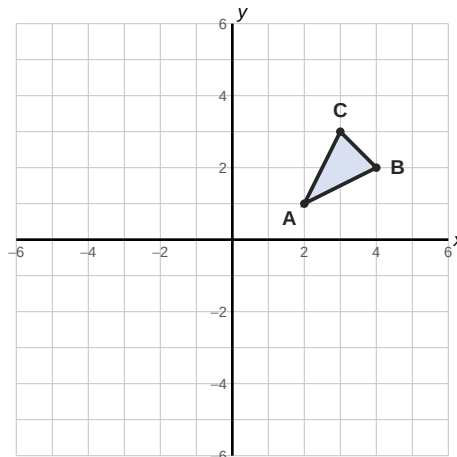


Image coordinates:

A' (,)

B' (,)

C' (,)

Original:

A (2, 1)

B (4, 2)

C (3, 3)

5. Translate the figure 1 unit left and 4 units down.

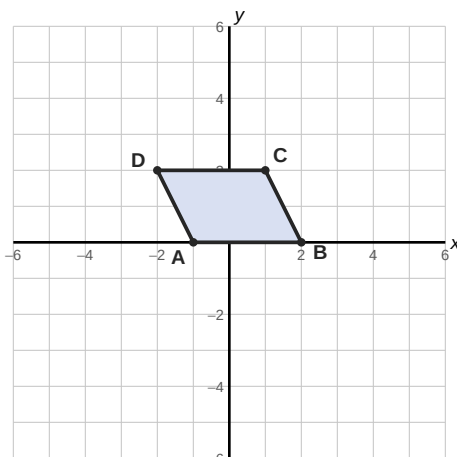


Image coordinates:

A' (,)

B' (,)

C' (,)

D' (,)

Original:

A (-1, 0)

B (2, 0)

C (1, 2)

D (-2, 2)

6. Translate using the rule $(x, y) \rightarrow (x - 3, y + 1)$.

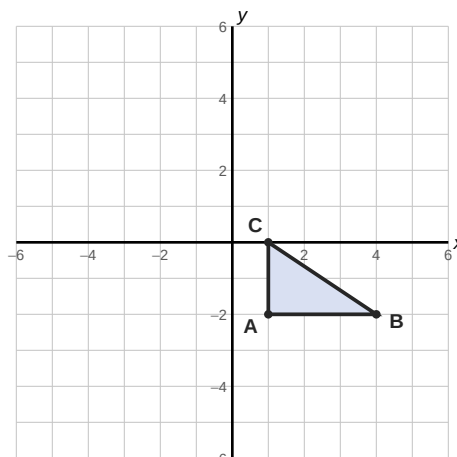


Image coordinates:

A' (,)

B' (,)

C' (,)

Original:

A (1, -2)

B (4, -2)

C (1, 0)

Translations (Part 2)

Name: _____ Date: _____

Slide every vertex the same direction and distance. Draw the image and label it with prime marks (A' , B' , ...).

7. Translate the figure 2 units left and 6 units up.

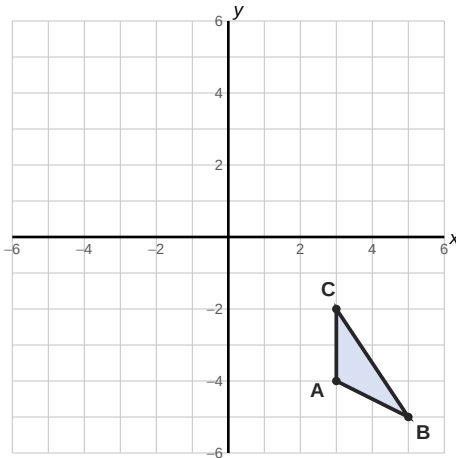


Image coordinates:

A' (,)

B' (,)

C' (,)

Original:

A (3, -4)

B (5, -5)

C (3, -2)

8. Translate using the rule $(x, y) \rightarrow (x + 1, y - 3)$.

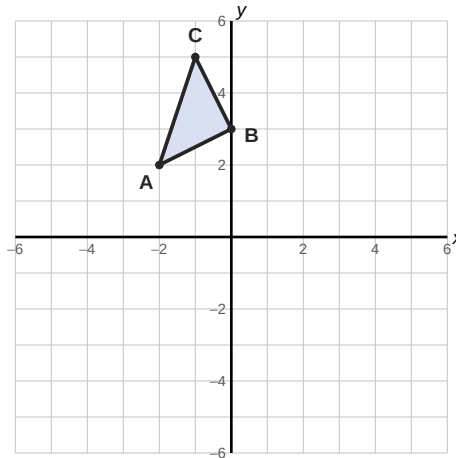


Image coordinates:

A' (,)

B' (,)

C' (,)

Original:

A (-2, 2)

B (0, 3)

C (-1, 5)

9. Translate the figure 4 units left.

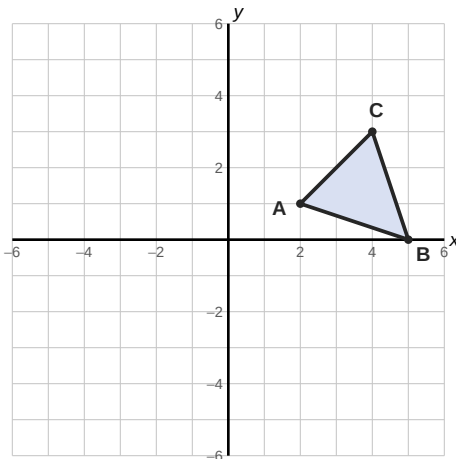


Image coordinates:

A' (,)

B' (,)

C' (,)

Original:

A (2, 1)

B (5, 0)

C (4, 3)

10. Translate using the rule $(x, y) \rightarrow (x + 1, y - 2)$.

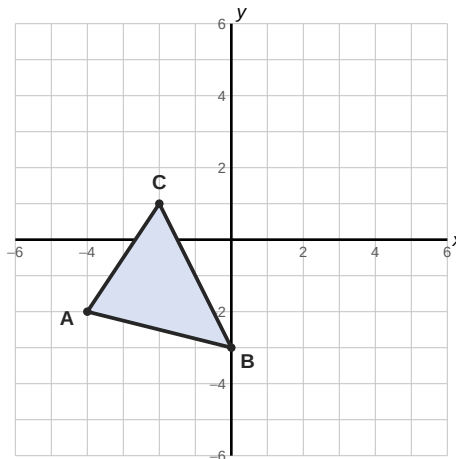


Image coordinates:

A' (,)

B' (,)

C' (,)

Original:

A (-4, -2)

B (0, -3)

C (-2, 1)

11. Translate the figure 5 units right and 5 units up.

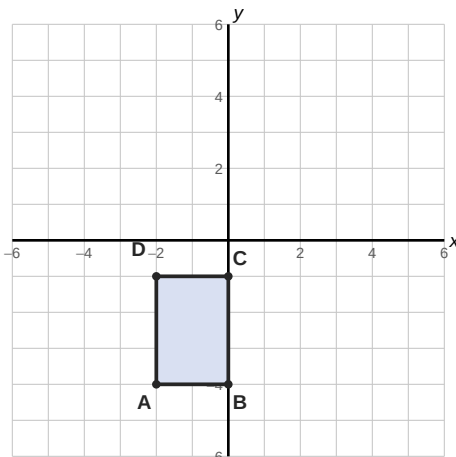


Image coordinates:

A' (,)

B' (,)

C' (,)

D' (,)

Original:

A (-2, -4)

B (0, -4)

C (0, -1)

D (-2, -1)

12. Translate using the rule $(x, y) \rightarrow (x + 4, y - 6)$.

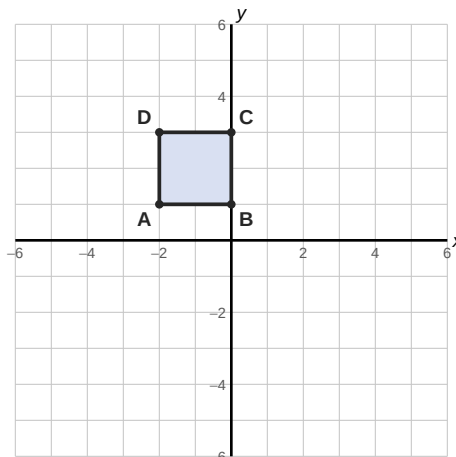


Image coordinates:

A' (,)

B' (,)

C' (,)

D' (,)

Original:

A (-2, 1)

B (0, 1)

C (0, 3)

D (-2, 3)

Reflections (Part 1)

Name: _____ Date: _____

Flip the figure over the given line. Each image point is the same distance from the line as the original.

1. Reflect the figure over the x-axis.

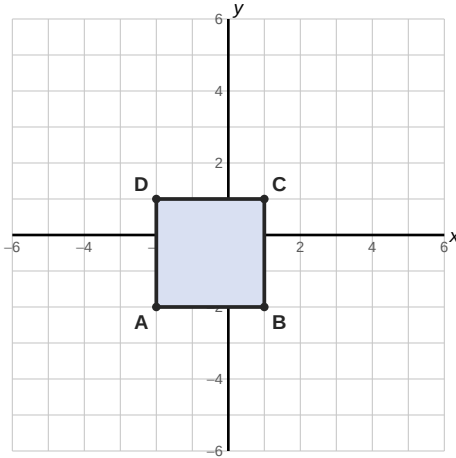


Image coordinates:

A' (,)

B' (,)

C' (,)

D' (,)

Original:

A (-2, -2)

B (1, -2)

C (1, 1)

D (-2, 1)

2. Reflect the figure over the y-axis.

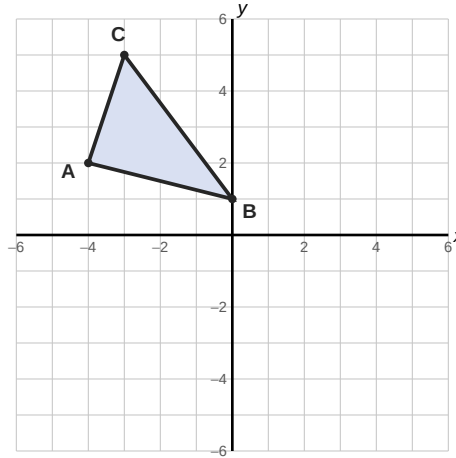


Image coordinates:

A' (,)

B' (,)

C' (,)

Original:

A (-4, 2)

B (0, 1)

C (-3, 5)

3. Reflect the figure over the line $y = x$.

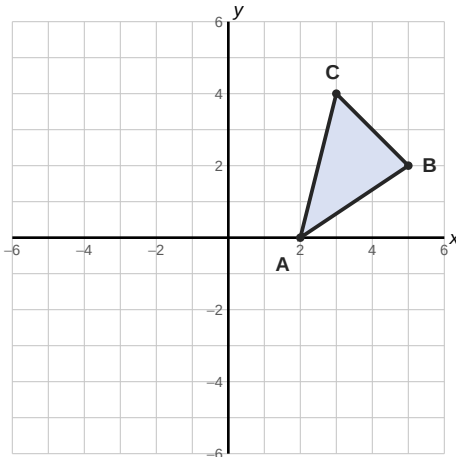


Image coordinates:

A' (,)

B' (,)

C' (,)

Original:

A (2, 0)

B (5, 2)

C (3, 4)

4. Reflect the figure over the line $y = -x$.

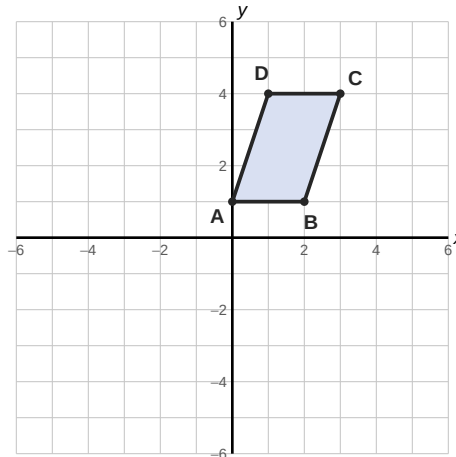


Image coordinates:

A' (,)

B' (,)

C' (,)

D' (,)

Original:

A (0, 1)

B (2, 1)

C (3, 4)

D (1, 4)

5. Reflect the figure over the x-axis.

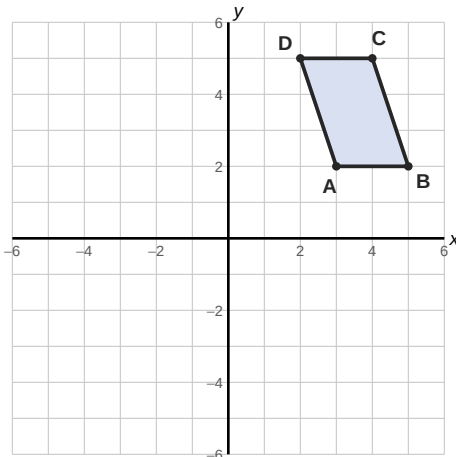


Image coordinates:

A' (,)

B' (,)

C' (,)

D' (,)

Original:

A (3, 2)

B (5, 2)

C (4, 5)

D (2, 5)

6. Reflect the figure over the y-axis.

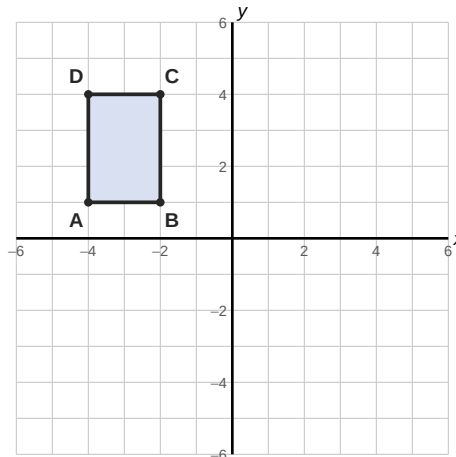


Image coordinates:

A' (,)

B' (,)

C' (,)

D' (,)

Original:

A (-4, 1)

B (-2, 1)

C (-2, 4)

D (-4, 4)

Reflections (Part 2)

Name: _____ Date: _____

Flip the figure over the given line. Each image point is the same distance from the line as the original.

7. Reflect the figure over the line $y = x$.

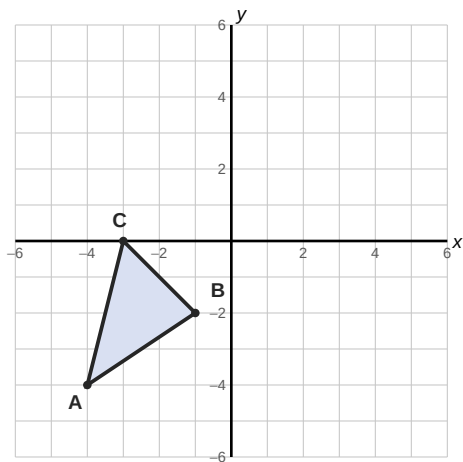


Image coordinates:
A' (,)
B' (,)
C' (,)

Original:
A (-4, -4)
B (-1, -2)
C (-3, 0)

8. Reflect the figure over the line $y = -x$.

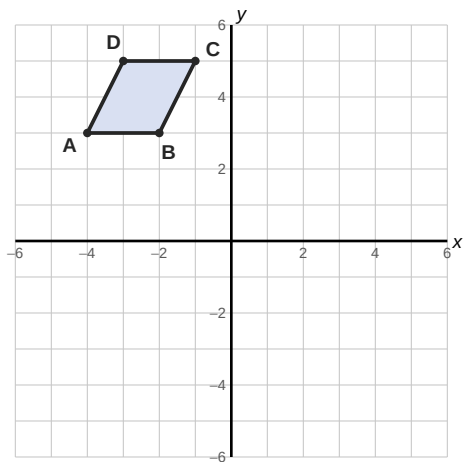


Image coordinates:
A' (,)
B' (,)
C' (,)
D' (,)

Original:
A (-4, 3)
B (-2, 3)
C (-1, 5)
D (-3, 5)

9. Reflect the figure over the line $x = 3$.

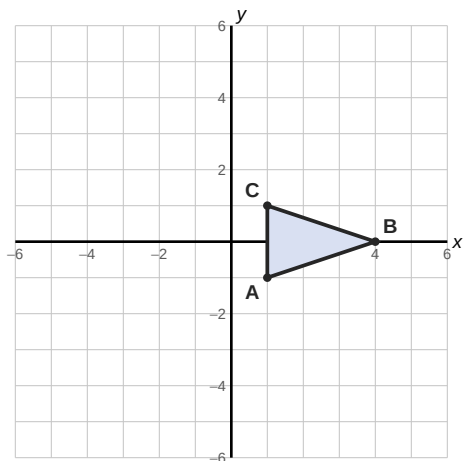


Image coordinates:
A' (,)
B' (,)
C' (,)

Original:
A (1, -1)
B (4, 0)
C (1, 1)

10. Reflect the figure over the line $y = -1$.

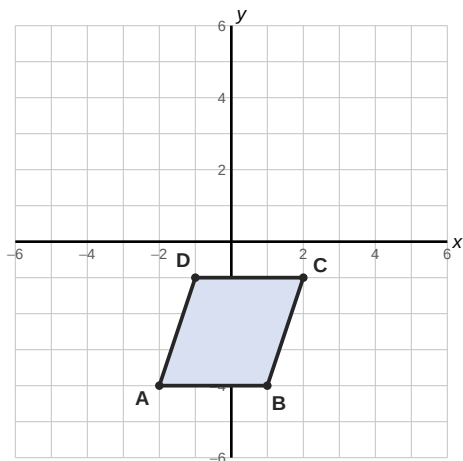


Image coordinates:
A' (,)
B' (,)
C' (,)
D' (,)

Original:
A (-2, -4)
B (1, -4)
C (2, -1)
D (-1, -1)

11. Reflect the figure over the line $x = 1$.

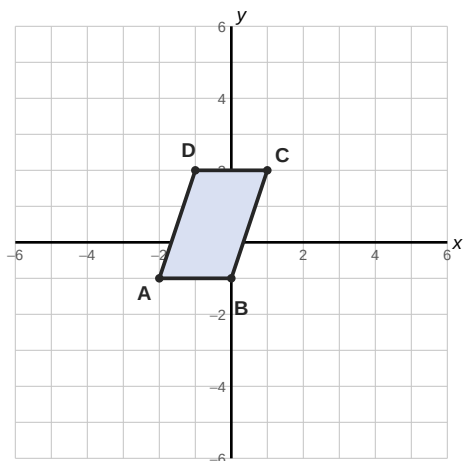


Image coordinates:
A' (,)
B' (,)
C' (,)
D' (,)

Original:
A (-2, -1)
B (0, -1)
C (1, 2)
D (-1, 2)

12. Reflect the figure over the line $y = -2$.

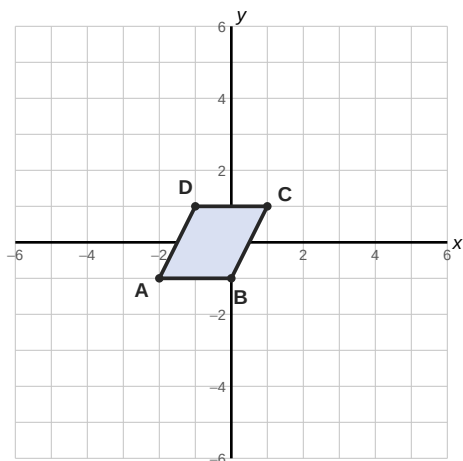


Image coordinates:
A' (,)
B' (,)
C' (,)
D' (,)

Original:
A (-2, -1)
B (0, -1)
C (1, 1)
D (-1, 1)

Rotations (Part 1)

Name: _____ Date: _____

Turn the figure about the origin (0, 0). Tip: trace the figure, put your pencil on the origin, and turn the paper.

1. Rotate the figure 90° counterclockwise about the origin.

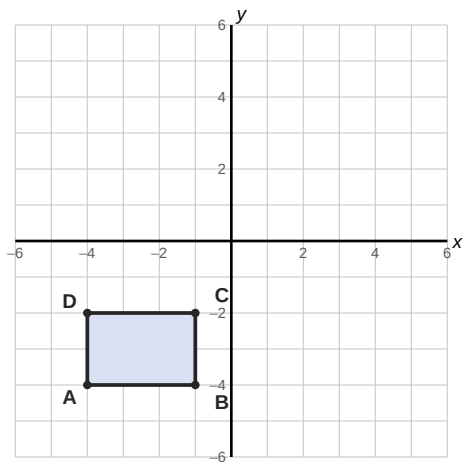


Image coordinates:

A' (,)

B' (,)

C' (,)

D' (,)

Original:

A (-4, -4)

B (-1, -4)

C (-1, -2)

D (-4, -2)

2. Rotate the figure 90° clockwise about the origin.

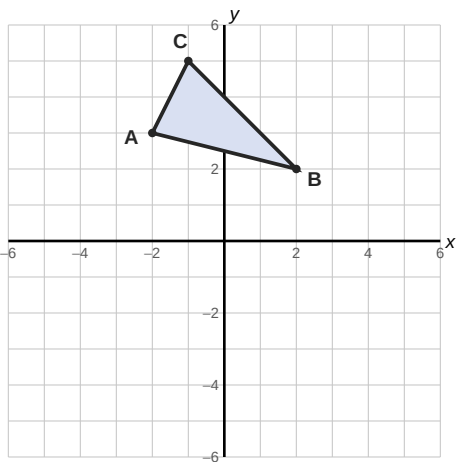


Image coordinates:

A' (,)

B' (,)

C' (,)

Original:

A (-2, 3)

B (2, 2)

C (-1, 5)

3. Rotate the figure 180° about the origin.

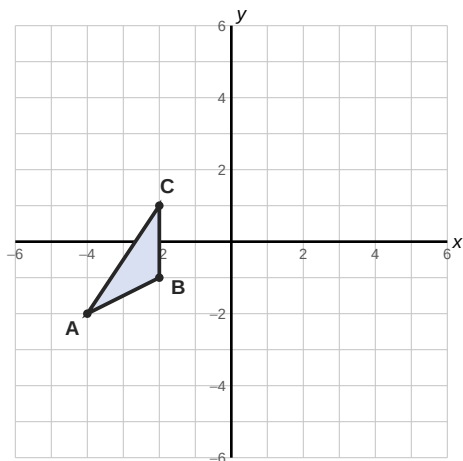


Image coordinates:

A' (,)

B' (,)

C' (,)

Original:

A (-4, -2)

B (-2, -1)

C (-2, 1)

4. Rotate the figure 270° counterclockwise about the origin.

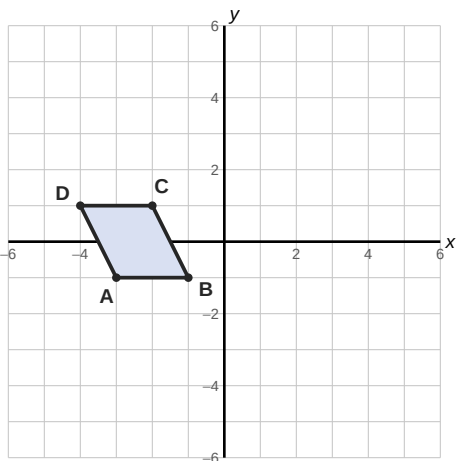


Image coordinates:

A' (,)

B' (,)

C' (,)

D' (,)

Original:

A (-3, -1)

B (-1, -1)

C (-2, 1)

D (-3, 1)

5. Rotate the figure 90° counterclockwise about the origin.

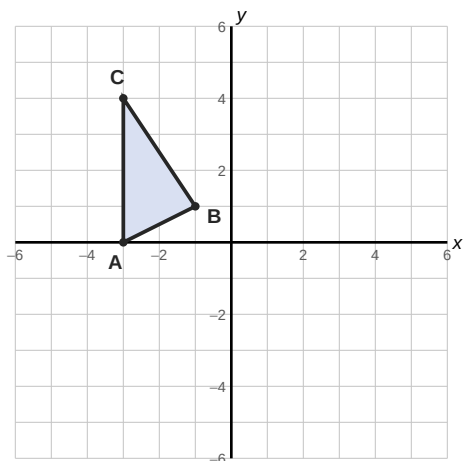


Image coordinates:

A' (,)

B' (,)

C' (,)

Original:

A (-3, 0)

B (-1, 1)

C (-3, 4)

6. Rotate the figure 90° clockwise about the origin.

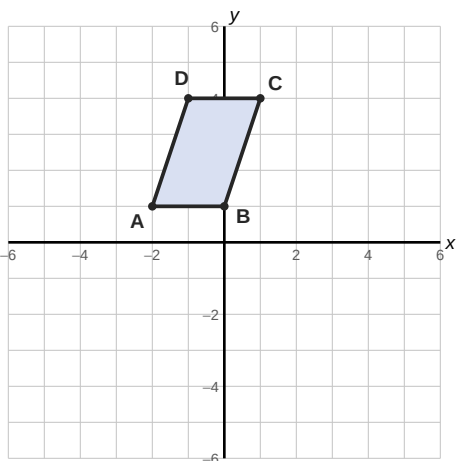


Image coordinates:

A' (,)

B' (,)

C' (,)

D' (,)

Original:

A (-2, 1)

B (0, 1)

C (1, 4)

D (-1, 4)

Rotations (Part 2)

Name: _____ Date: _____

Turn the figure about the origin (0, 0). Tip: trace the figure, put your pencil on the origin, and turn the paper.

7. Rotate the figure 180° about the origin.

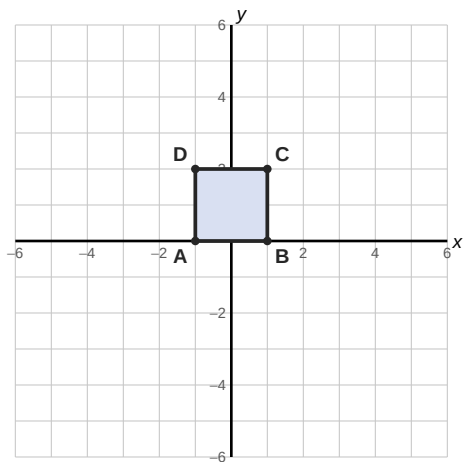


Image coordinates:

A' (,)

B' (,)

C' (,)

D' (,)

Original:

A (-1, 0)

B (1, 0)

C (1, 2)

D (-1, 2)

8. Rotate the figure 270° counterclockwise about the origin.

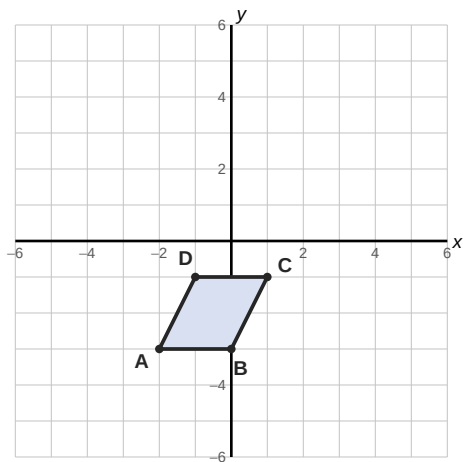


Image coordinates:

A' (,)

B' (,)

C' (,)

D' (,)

Original:

A (-2, -3)

B (0, -3)

C (1, -1)

D (-1, -1)

9. Rotate the figure 90° counterclockwise about the origin.

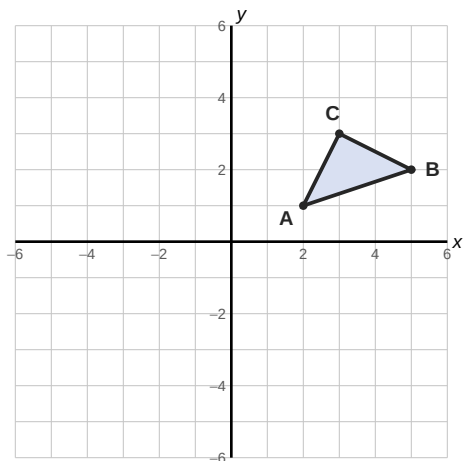


Image coordinates:

A' (,)

B' (,)

C' (,)

Original:

A (2, 1)

B (5, 2)

C (3, 3)

10. Rotate the figure 90° clockwise about the origin.

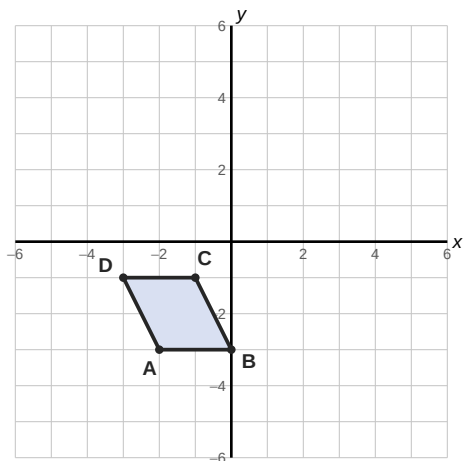


Image coordinates:

A' (,)

B' (,)

C' (,)

D' (,)

Original:

A (-2, -3)

B (0, -3)

C (-1, -1)

D (-3, -1)

11. Rotate the figure 180° about the origin.

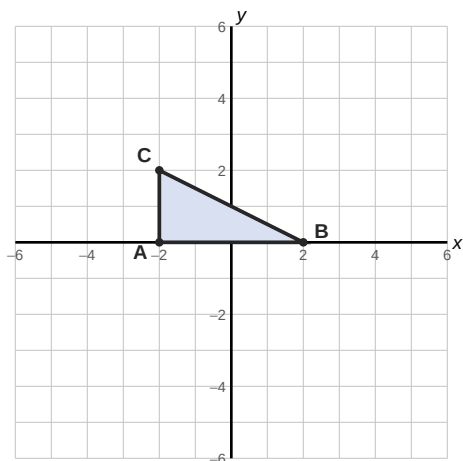


Image coordinates:

A' (,)

B' (,)

C' (,)

Original:

A (-2, 0)

B (2, 0)

C (-2, 2)

12. Rotate the figure 270° counterclockwise about the origin.

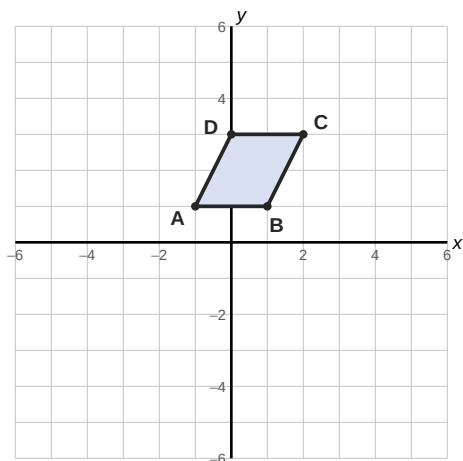


Image coordinates:

A' (,)

B' (,)

C' (,)

D' (,)

Original:

A (-1, 1)

B (1, 1)

C (2, 3)

D (0, 3)

Mixed Review (Two-Step)

Name: _____ Date: _____

Do the first transformation, then apply the second one to that result. Graph only the final image.

1. Translate 2 units right and 2 units up, then reflect over the line $y = -x$.

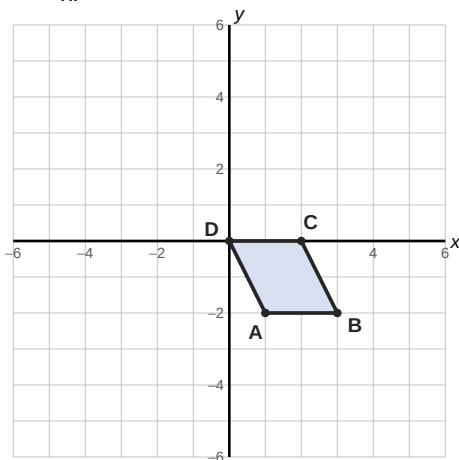


Image coordinates:

A' (,)

B' (,)

C' (,)

D' (,)

Original:

A (1, -2)

B (3, -2)

C (2, 0)

D (0, 0)

2. Reflect over the y-axis, then rotate 270° counterclockwise about the origin.

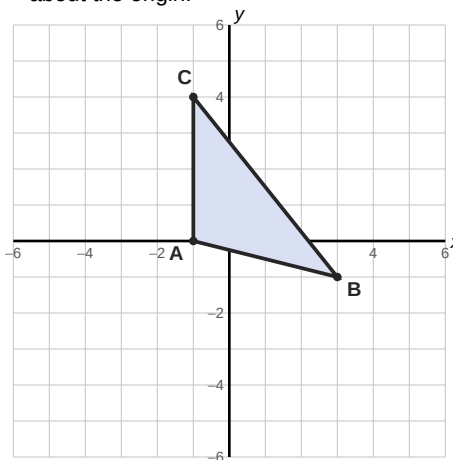


Image coordinates:

A' (,)

B' (,)

C' (,)

Original:

A (-1, 0)

B (3, -1)

C (-1, 4)

3. Rotate 90° clockwise about the origin, then translate 3 units left and 1 unit down.

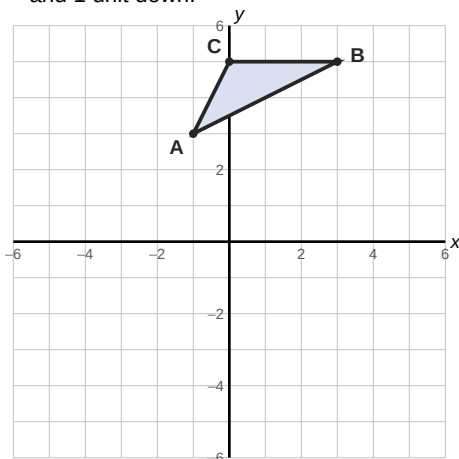


Image coordinates:

A' (,)

B' (,)

C' (,)

Original:

A (-1, 3)

B (3, 5)

C (0, 5)

4. Translate 2 units left and 1 unit up, then reflect over the x-axis.

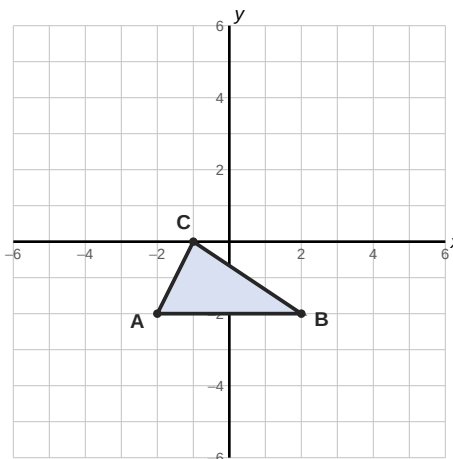


Image coordinates:

A' (,)

B' (,)

C' (,)

Original:

A (-2, -2)

B (2, -2)

C (-1, 0)

5. Reflect over the line $y = -x$, then rotate 180° about the origin.

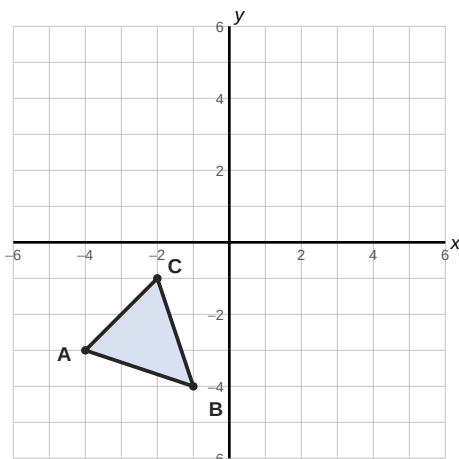


Image coordinates:

A' (,)

B' (,)

C' (,)

Original:

A (-4, -3)

B (-1, -4)

C (-2, -1)

6. Rotate 90° clockwise about the origin, then translate 3 units right.

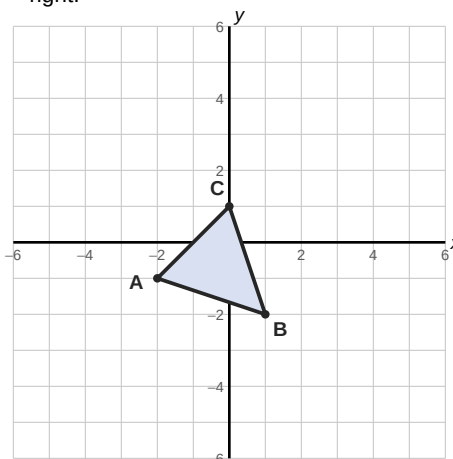


Image coordinates:

A' (,)

B' (,)

C' (,)

Original:

A (-2, -1)

B (1, -2)

C (0, 1)