Class Name : **(T) PERIOD 1 - MATH 8**

Instructor Name : **Mr. Trodick**

Student Name : _____

Instructor Note :

1. Write $\frac{32}{25}$ as a decimal.

2. Write $\frac{1}{6}$ as a decimal. If necessary, use a bar to indicate which digit or group of digits repeats.

3. Write $8\frac{11}{20}$ as a decimal.

4. Write $0.\overline{37}$ as a fraction.

5. Classify each number below as a rational number or an irrational number.

	rational	irrational
$54.\overline{7}$	○	○
-9π	○	○
$-\sqrt{21}$	○	○
$-\sqrt{64}$	○	○
16.18	○	○

6. Find two consecutive whole numbers that $\sqrt{91}$ lies between.

7. Use a calculator to approximate $\sqrt{109}$ as a decimal to the tenths place.

Note that you must do the approximation without using a square root button.
Your answer must be within a tenth of the actual value.

8. Order these numbers from least to greatest.

$$5.67,\ \frac{50}{9},\ \sqrt{32},\ -\sqrt{33}$$

9. Rewrite using a single exponent.

$$9^3 \cdot 9^3$$

10. Rewrite using a single exponent.

$$\left(5^4\right)^6$$

11. Rewrite using a single positive exponent.

$$\frac{6^7}{6^2}$$

12. Rewrite using a single positive exponent.

$$8^{-3} \cdot 8^8$$

13. Rewrite using a single positive exponent.

$$\frac{6^2}{6^{-7}}$$

14. Rewrite using a single positive exponent.

$$\left(5^{-3}\right)^4$$

15. What number is equal to $\sqrt{36}$?

16. Find the value of $\sqrt[3]{-216}$.

17. Solve $u^2 = 64$, where u is a real number.
Simplify your answer as much as possible.

18. Write $70{,}000$ in scientific notation.

19. Write 0.00002 in scientific notation.

20. Calculate.

$$(2.3 \times 10^6)(3 \times 10^5)$$

Write your answer in scientific notation.

21. Calculate.

$$\frac{8 \times 10^9}{2 \times 10^4}$$

Write your answer in scientific notation.

22. Calculate.

$$(6 \times 10^7) + (3 \times 10^7)$$

Write your answer in scientific notation.

23. Solve for v.

$$7 + v = -4$$

24. Solve for y.

$$-47 = \frac{y}{3}$$

Simplify your answer as much as possible.

25. Solve for x .

$$-\frac{7}{6}x = 28$$

Simplify your answer as much as possible.

26. Solve for x.

$$6 = \frac{x}{9.6}$$

27. Solve for y.

$$245 = -y + 191$$

28. Solve for x.

$$8(x-2) = 64$$

Simplify your answer as much as possible.

29. Solve for x.

$$\frac{x+51}{9} = 5$$

Simplify your answer as much as possible.

30. Solve for u.

$$-18 = 7u + 9 - 10u$$

Simplify your answer as much as possible.

31. Solve for w.

$$7w = 72 - w$$

Simplify your answer as much as possible.

32. Solve for x.

$$9x - 14 = 6x - 2$$

Simplify your answer as much as possible.

33. Solve for x.

$$19 = 5(x+3) - 7x$$

Simplify your answer as much as possible.

34. Solve for x.

$$-2x + 18 = 7(x-9)$$

Simplify your answer as much as possible.

35. Solve for v.

$$-5(-2v+4) - 9v = 7(v-2) - 9$$

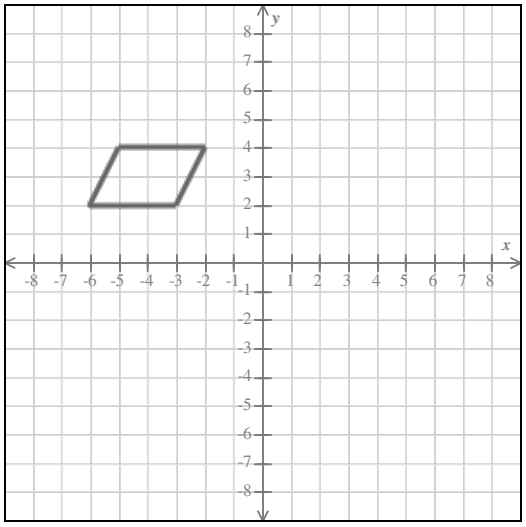
Simplify your answer as much as possible.

36. Solve for u.

$$-\frac{9}{4}u + \frac{9}{2} = -\frac{9}{7}$$

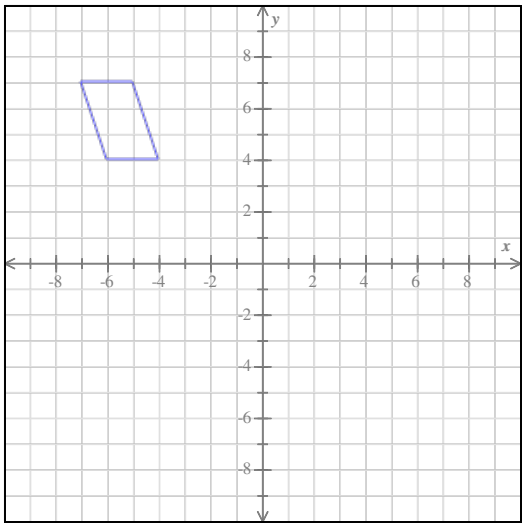
Simplify your answer as much as possible.

37. Translate the figure 5 units down. Then decide if each statement about translated figures is true or false.



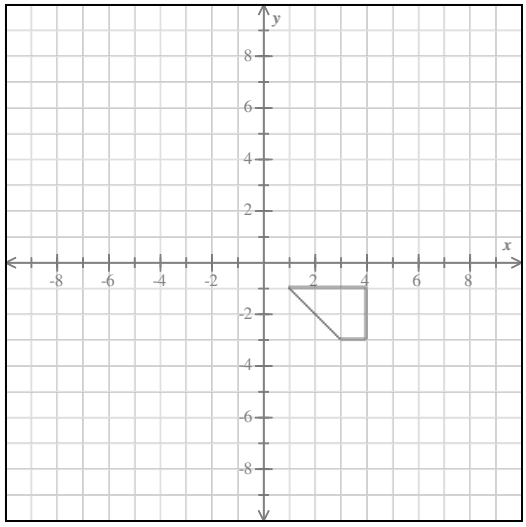
Statement about translated figures	True	False
The final angle measures are the same as the original angle measures.	○	○
The final side lengths are shorter than the original side lengths.	○	○
The original figure and the final figure may *not* be congruent.	○	○
If two sides are parallel in the original figure, then those sides may *not* be parallel in the final figure.	○	○

38. Reflect the figure across the x-axis. Then decide if each statement about reflected figures is true or false.



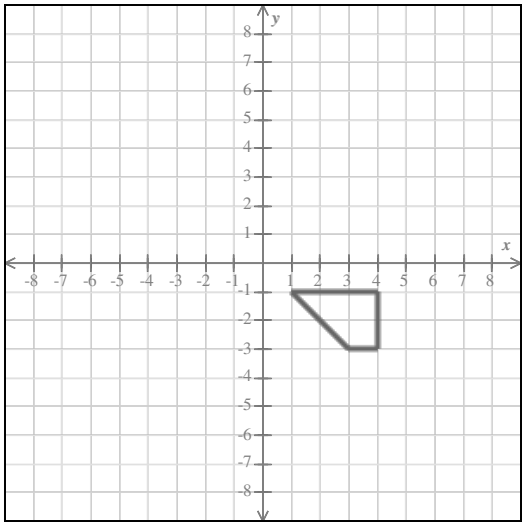
Statement about reflected figures	True	False
The final angle measures are smaller than the original angle measures.	○	○
If two sides are parallel in the original figure, then those sides are parallel in the final figure.	○	○
The final side lengths are the same as the original side lengths.	○	○
The original figure and the final figure are congruent.	○	○

39. Rotate the figure $180\,^{\circ}$ counterclockwise about the origin. Then decide if each statement about rotated figures is true or false.



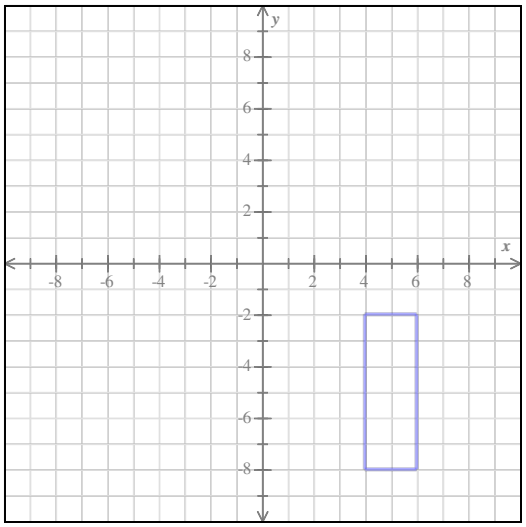
Statement about rotated figures	True	False
If two sides are parallel in the original figure, then those sides may *not* be parallel in the final figure.	○	○
The final side lengths are the same as the original side lengths.	○	○
The final angle measures are smaller than the original angle measures.	○	○
The original figure and the final figure may *not* be congruent.	○	○

40. Translate the figure 4 units up. Then decide if each statement about translated figures is true or false.



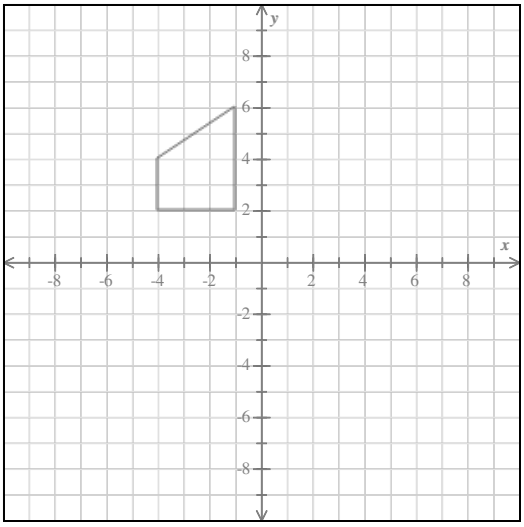
Statement about translated figures	True	False
The final angle measures are larger than the original angle measures.	○	○
If two sides are parallel in the original figure, then those sides are parallel in the final figure.	○	○
The final side lengths are the same as the original side lengths.	○	○
The original figure and the final figure are congruent.	○	○

41. Reflect the figure across the y-axis. Then decide if each statement about reflected figures is true or false.



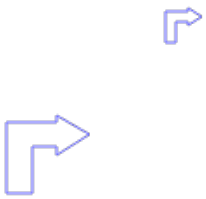
Statement about reflected figures	True	False
The final side lengths are shorter than the original side lengths.	○	○
The final angle measures are smaller than the original angle measures.	○	○
The original figure and the final figure are congruent.	○	○
If two sides are parallel in the original figure, then those sides may *not* be parallel in the final figure.	○	○

42. Rotate the figure $90°$ clockwise about the origin. Then decide if each statement about rotated figures is true or false.



Statement about rotated figures	True	False
The final side lengths are the same as the original side lengths.	○	○
The final angle measures are the same as the original angle measures.	○	○
If two sides are parallel in the original figure, then those sides are parallel in the final figure.	○	○
The original figure and the final figure may *not* be congruent.	○	○

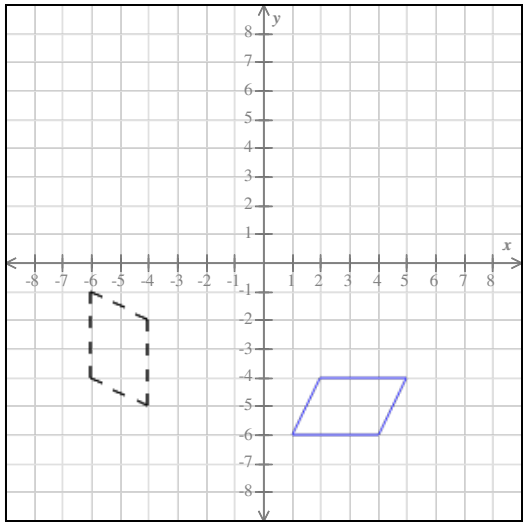
43. For each pair of figures below, choose how they are related.

			
○ Translation ○ Reflection ○ Rotation ○ None of these	○ Translation ○ Reflection ○ Rotation ○ None of these	○ Translation ○ Reflection ○ Rotation ○ None of these	○ Translation ○ Reflection ○ Rotation ○ None of these

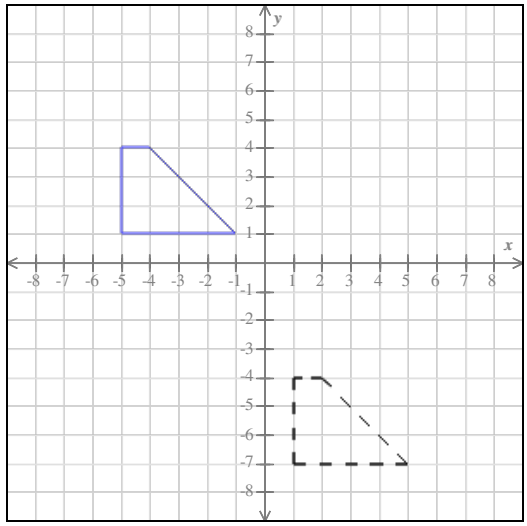
44. In each part, translate the solid figure exactly onto the dashed figure.

If this is not possible, click on "Not possible".

(a)

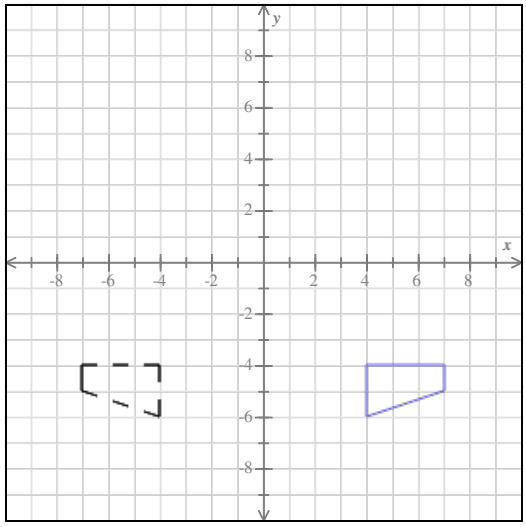


(b)

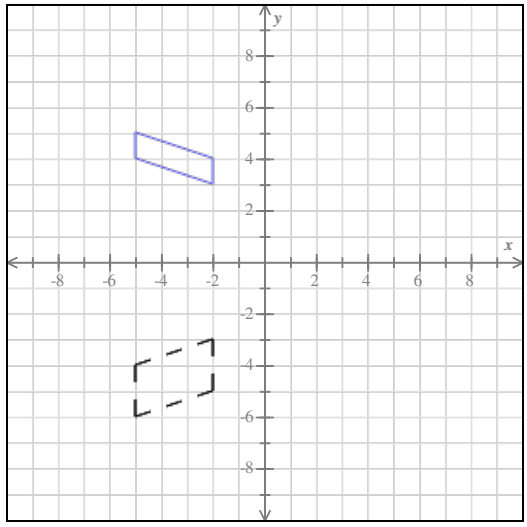


45. In each part, reflect the solid figure exactly onto the dashed figure.

(a)



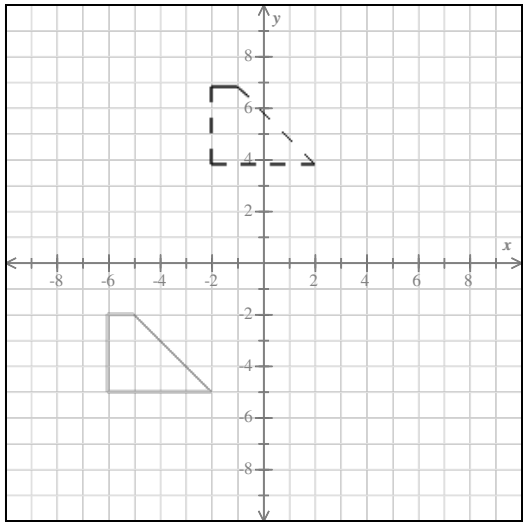
(b)



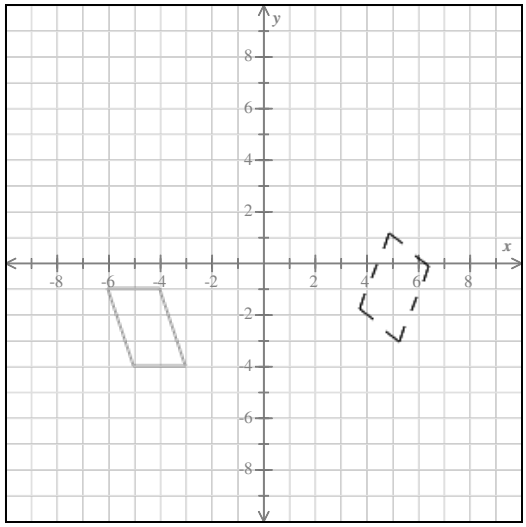
46. In each part, rotate the solid figure about the origin exactly onto the dashed figure.

If this is not possible, click on "Not possible".

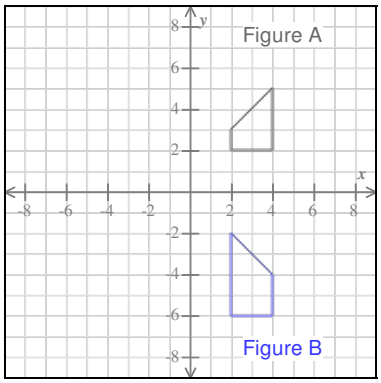
(a)



(b)

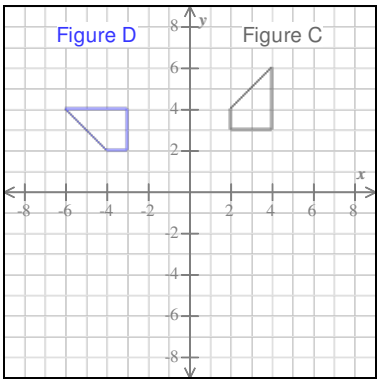


47. Answer each question below.



Are Figure A and Figure B congruent?
- Yes
- No

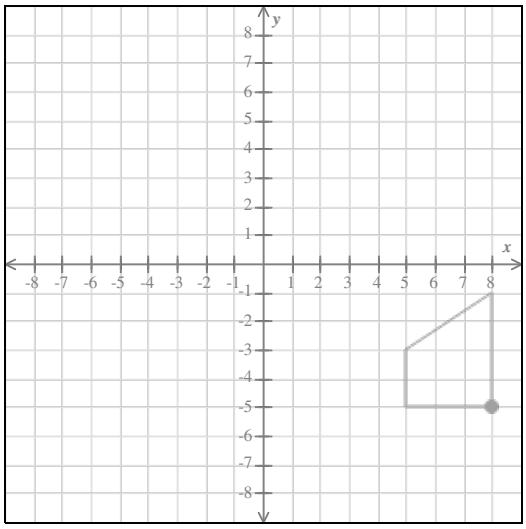
Which transformation will map Figure A onto Figure B exactly?
- Translate Figure A to the left 3 units
- Translate Figure A down 3 units
- Reflect Figure A over the x-axis
- Reflect Figure A over the y-axis
- Rotate Figure A clockwise $90°$ about the origin
- Rotate Figure A counterclockwise $180°$ about the origin
- None of these



Are Figure C and Figure D congruent?
- Yes
- No

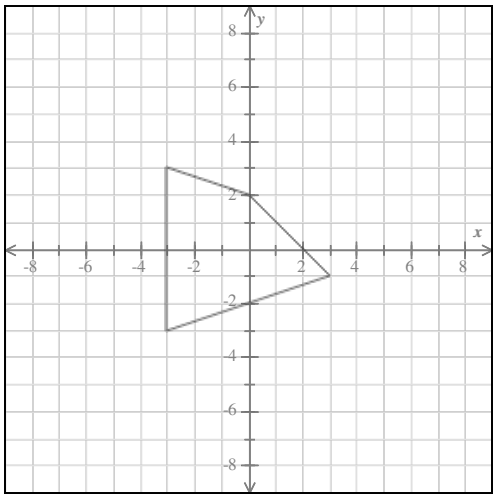
Which transformation will map Figure C onto Figure D exactly?
- Translate Figure C to the right 5 units
- Translate Figure C up 5 units
- Reflect Figure C over the x-axis
- Reflect Figure C over the y-axis
- Rotate Figure C clockwise $180°$ about the origin
- Rotate Figure C counterclockwise $90°$ about the origin
- None of these

48. The figure below has a point marked with a large dot.
First, translate the figure 8 units to the left and 6 units up.
Then, give the coordinates of the marked point in the original figure and the final figure.



Point in original figure:
Point in final figure:

49. Draw the following quadrilateral after a translation 1 unit to the right and 4 units down.

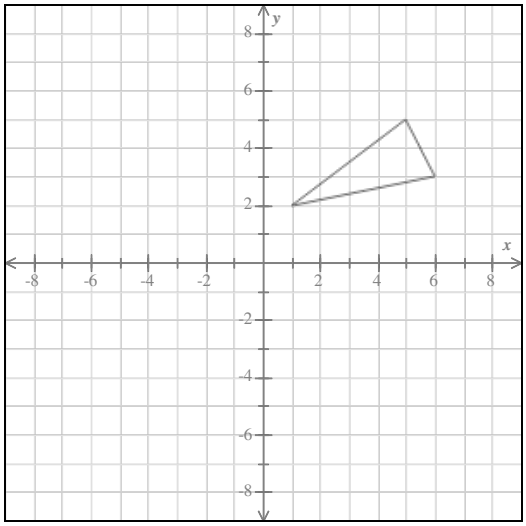


50. Give the coordinates of the point obtained from each reflection.

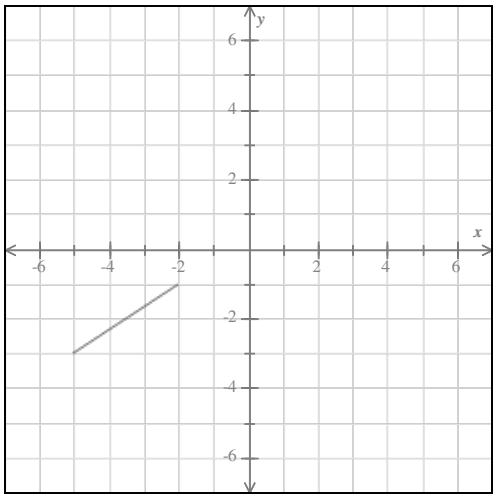
(a) Reflect the point $(-3,\ 5)$ across the x-axis: $(\quad,\quad)$

(b) Reflect the point $(-3,\ 5)$ across the y-axis: $(\quad,\quad)$

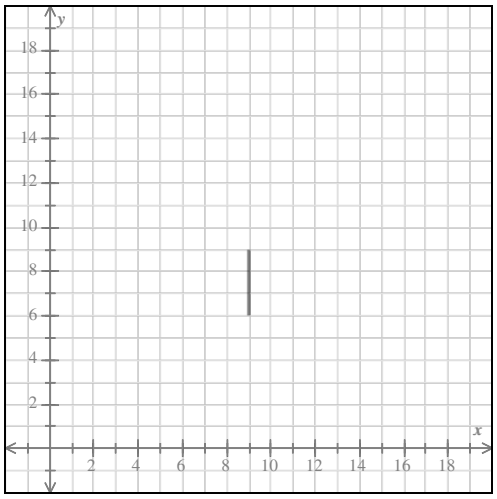
51. Draw the reflection of the triangle across the x-axis.



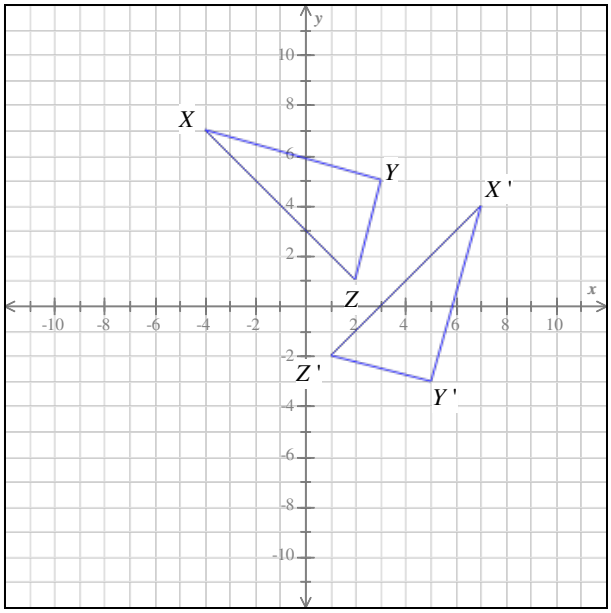
52. Draw the following segment after a 180° rotation about the origin.



53. Draw the image of the following segment after a dilation centered at the origin with a scale factor of $\frac{5}{3}$.



54. Triangle XYZ is rotated $270°$ counterclockwise about the origin.
The result is $\triangle X'Y'Z'$, as shown below.



(a) The arrows below show that the coordinates on the left are mapped to the coordinates on the right. Fill in the blanks to give the coordinates after the rotation.

original coordinates → final coordinates

$X\,(-4, 7) \rightarrow X'(\_\_\_\_\_, \_\_\_\_\_)$

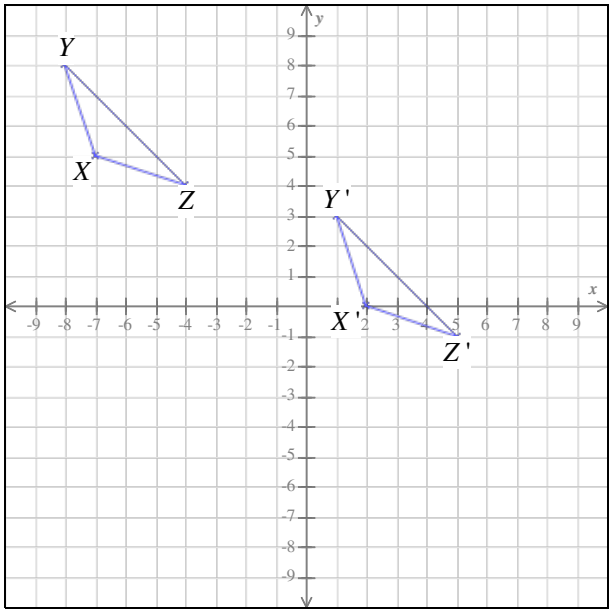
$Y\,(3, 5) \rightarrow Y'(\_\_\_\_\_, \_\_\_\_\_)$

$Z\,(2, 1) \rightarrow Z'(\_\_\_\_\_, \_\_\_\_\_)$

(b) Choose the general rule below that describes the rotation mapping $\triangle XYZ$ to $\triangle X'Y'Z'$.

- ○ $(x, y) \rightarrow (-x, y)$
- ○ $(x, y) \rightarrow (-y, x)$
- ○ $(x, y) \rightarrow (-x, -y)$
- ○ $(x, y) \rightarrow (x, -y)$
- ○ $(x, y) \rightarrow (-y, -x)$
- ○ $(x, y) \rightarrow (y, x)$
- ○ $(x, y) \rightarrow (y, -x)$

55. Triangle XYZ is translated 9 units to the right and 5 units down.
The result is $\triangle X'Y'Z'$, as shown below.



(a) The arrows below show that the coordinates on the left are mapped to the coordinates on the right. Fill in the blanks to give the coordinates after the translation.

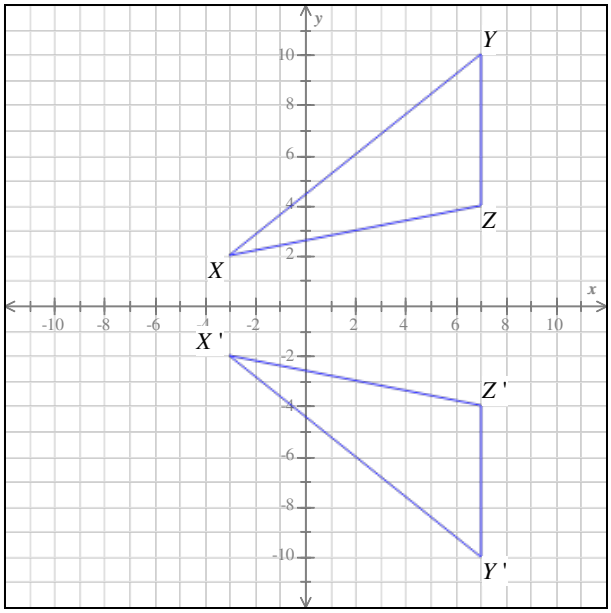
$X(-7,\ 5) \rightarrow X'(\ \ ,\ \ )$
$Y(-8,\ 8) \rightarrow Y'(\ \ ,\ \ )$
$Z(-4,\ 4) \rightarrow Z'(\ \ ,\ \ )$

(b) Choose the general rule below that describes the translation mapping $\triangle XYZ$ to $\triangle X'Y'Z'$.

- $(x,\ y) \rightarrow (9x,\ -5y)$
- $(x,\ y) \rightarrow (5x,\ -9y)$
- $(x,\ y) \rightarrow (-9x,\ 5y)$
- $(x,\ y) \rightarrow (-5x,\ 9y)$
- $(x,\ y) \rightarrow (x+9,\ y-5)$
- $(x,\ y) \rightarrow (x-9,\ y+5)$
- $(x,\ y) \rightarrow (x-5,\ y+9)$
- $(x,\ y) \rightarrow (x+5,\ y-9)$

56. Triangle XYZ is reflected across the x-axis.

The result is $\triangle X'Y'Z'$, as shown below.



(a) The arrows below show that the coordinates on the left are mapped to the coordinates on the right. Fill in the blanks to give the coordinates after the reflection.

original coordinates → final coordinates

$X\,(-3, 2) \rightarrow X'(\_\_\_\_\_, \_\_\_\_\_)$

$Y\,(7, 10) \rightarrow Y'(\_\_\_\_\_, \_\_\_\_\_)$

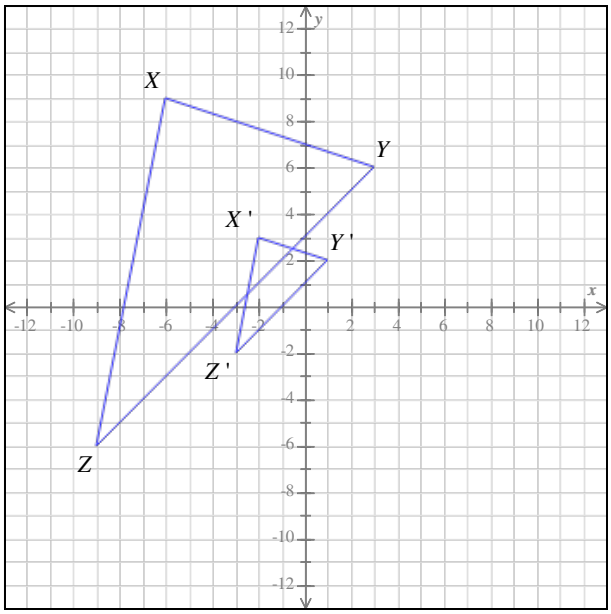
$Z\,(7, 4) \rightarrow Z'(\_\_\_\_\_, \_\_\_\_\_)$

(b) Choose the general rule below that describes the reflection mapping $\triangle XYZ$ to $\triangle X'Y'Z'$.

- ○ $(x, y) \rightarrow (-x, -y)$
- ○ $(x, y) \rightarrow (-x, y)$
- ○ $(x, y) \rightarrow (-y, x)$
- ○ $(x, y) \rightarrow (y, x)$
- ○ $(x, y) \rightarrow (-y, -x)$
- ○ $(x, y) \rightarrow (y, -x)$
- ○ $(x, y) \rightarrow (x, -y)$

57. A dilation centered at the origin with a scale factor of $\frac{1}{3}$ is applied to $\triangle XYZ$.

The result is $\triangle X'Y'Z'$, as shown below.



(a) The arrows below show that the coordinates on the left are mapped to the coordinates on the right. Fill in the blanks to give the coordinates after the dilation.

original coordinates → final coordinates

$X(-6, 9) \rightarrow X'(\_\_\_\_\_, \_\_\_\_\_)$

$Y(3, 6) \rightarrow Y'(\_\_\_\_\_, \_\_\_\_\_)$

$Z(-9, -6) \rightarrow Z'(\_\_\_\_\_, \_\_\_\_\_)$

(b) Choose the general rule below that describes the dilation mapping $\triangle XYZ$ to $\triangle X'Y'Z'$.

- $(x, y) \rightarrow (3y, 3x)$
- $(x, y) \rightarrow \left(\frac{1}{3}x, \frac{1}{3}y\right)$
- $(x, y) \rightarrow \left(\frac{1}{3}y, \frac{1}{3}x\right)$
- $(x, y) \rightarrow \left(\frac{1}{3}x, y\right)$
- $(x, y) \rightarrow \left(\frac{1}{3}x, 3y\right)$
- $(x, y) \rightarrow (3x, 3y)$
- $(x, y) \rightarrow \left(3x, \frac{1}{3}y\right)$
- $(x, y) \rightarrow \left(x, \frac{1}{3}y\right)$

Semester 1 Exam Practice #1 Answers for class (T) PERIOD 1 - MATH 8

1. 1.28

2. $0.1\overline{6}$

3. 8.55

4. $\frac{37}{99}$

5.

	rational	irrational
$54.\overline{7}$	⊙	○
-9π	○	⊙
$-\sqrt{21}$	○	⊙
$-\sqrt{64}$	⊙	○
16.18	⊙	○

6. 9 and 10

7. $\sqrt{109} \approx 10.4$

8. $-\sqrt{33} < \frac{50}{9} < \sqrt{32} < 5.67$

9. 9^6

10. 5^{24}

11. 6^5

12. 8^5

13. 6^9

14. $\frac{1}{5^{12}}$

15. 6

16. -6

17. $u = 8, -8$

18. 7×10^4

19. 2×10^{-5}

20. 6.9×10^{11}

21. 4×10^5

22. 9×10^7

23. $v = -11$

24. $y = -141$

25. $x = -24$

26. $x = 57.6$

27. $y = -54$

28. $x = 10$

29. $x = -6$

30. $u = 9$

31. $w = 9$

32. $x = 4$

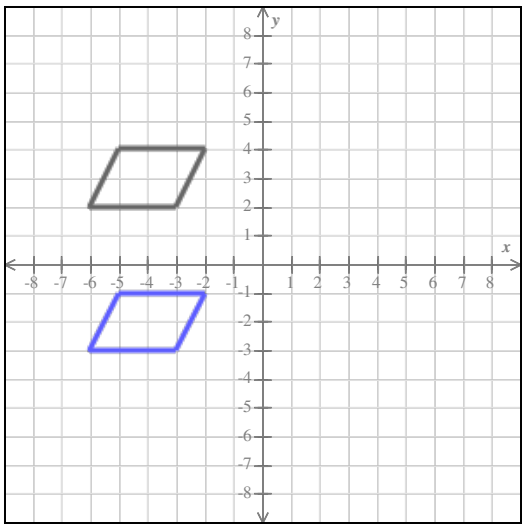
33. $x = -2$

34. $x = 9$

35. $v = \frac{1}{2}$

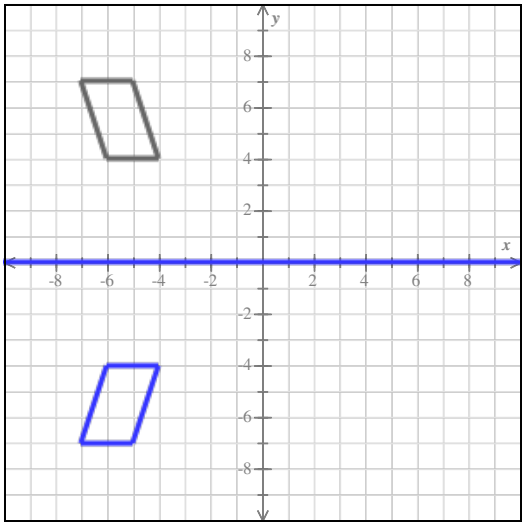
36. $u = \frac{18}{7}$.

37. Translate the figure 5 units down. Then decide if each statement about translated figures is true or false.



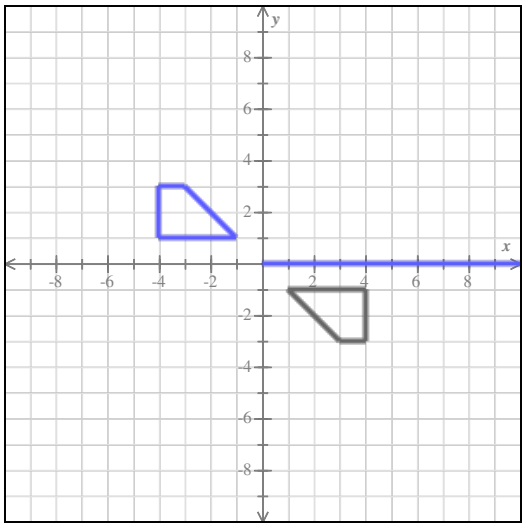
Statement about translated figures	True	False
The final angle measures are the same as the original angle measures.	◉	○
The final side lengths are shorter than the original side lengths.	○	◉
The original figure and the final figure may *not* be congruent.	○	◉
If two sides are parallel in the original figure, then those sides may *not* be parallel in the final figure.	○	◉

38. Reflect the figure across the x-axis. Then decide if each statement about reflected figures is true or false.



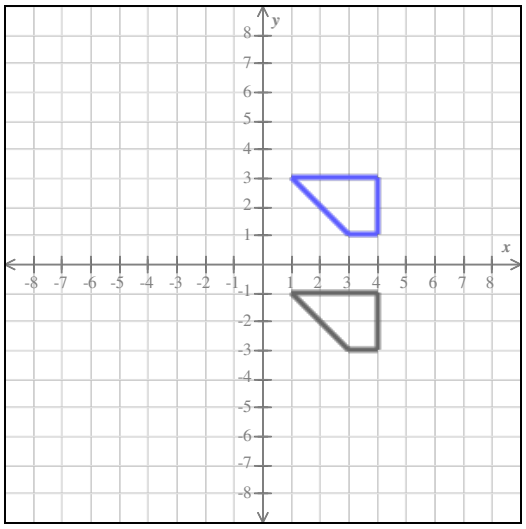
Statement about reflected figures	True	False
The final angle measures are smaller than the original angle measures.	○	◉
If two sides are parallel in the original figure, then those sides are parallel in the final figure.	◉	○
The final side lengths are the same as the original side lengths.	◉	○
The original figure and the final figure are congruent.	◉	○

39. Rotate the figure $180\,^\circ$ counterclockwise about the origin. Then decide if each statement about rotated figures is true or false.



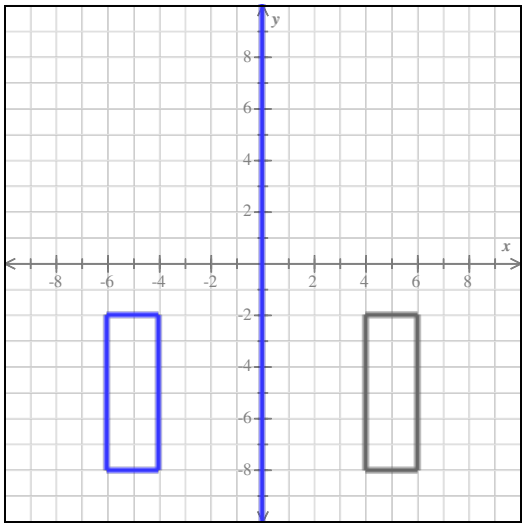
Statement about rotated figures	True	False
If two sides are parallel in the original figure, then those sides may *not* be parallel in the final figure.	○	◉
The final side lengths are the same as the original side lengths.	◉	○
The final angle measures are smaller than the original angle measures.	○	◉
The original figure and the final figure may *not* be congruent.	○	◉

40. Translate the figure 4 units up. Then decide if each statement about translated figures is true or false.



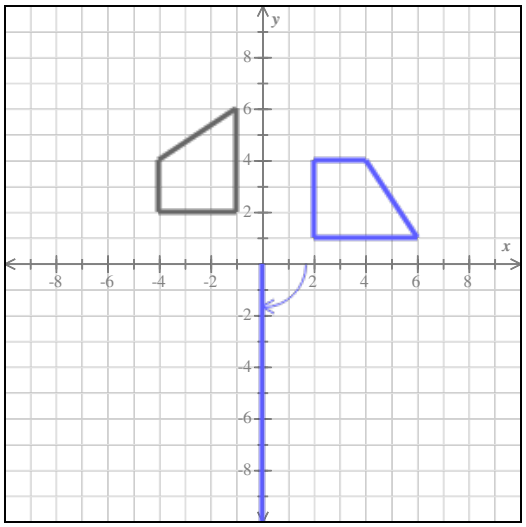
Statement about translated figures	True	False
The final angle measures are larger than the original angle measures.	○	◉
If two sides are parallel in the original figure, then those sides are parallel in the final figure.	◉	○
The final side lengths are the same as the original side lengths.	◉	○
The original figure and the final figure are congruent.	◉	○

41. Reflect the figure across the y-axis. Then decide if each statement about reflected figures is true or false.



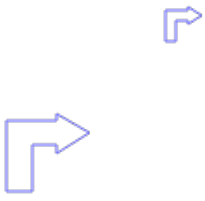
Statement about reflected figures	True	False
The final side lengths are shorter than the original side lengths.	○	◉
The final angle measures are smaller than the original angle measures.	○	◉
The original figure and the final figure are congruent.	◉	○
If two sides are parallel in the original figure, then those sides may *not* be parallel in the final figure.	○	◉

42. Rotate the figure $90\,^\circ$ clockwise about the origin. Then decide if each statement about rotated figures is true or false.



Statement about rotated figures	True	False
The final side lengths are the same as the original side lengths.	◉	○
The final angle measures are the same as the original angle measures.	◉	○
If two sides are parallel in the original figure, then those sides are parallel in the final figure.	◉	○
The original figure and the final figure may *not* be congruent.	○	◉

43.

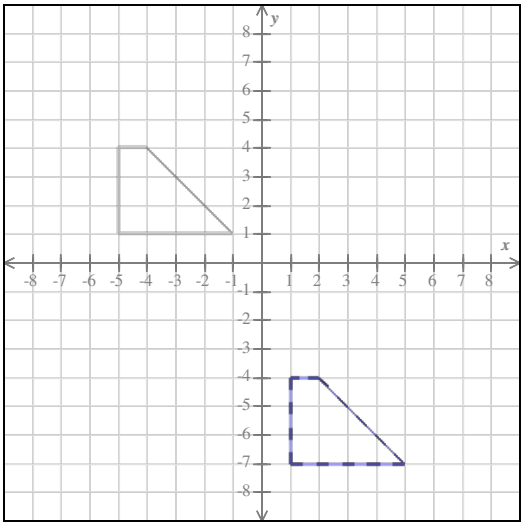
			
○ Translation ○ Reflection ◉ Rotation ○ None of these	◉ Translation ○ Reflection ○ Rotation ○ None of these	○ Translation ○ Reflection ○ Rotation ◉ None of these	○ Translation ○ Reflection ◉ Rotation ○ None of these

44.

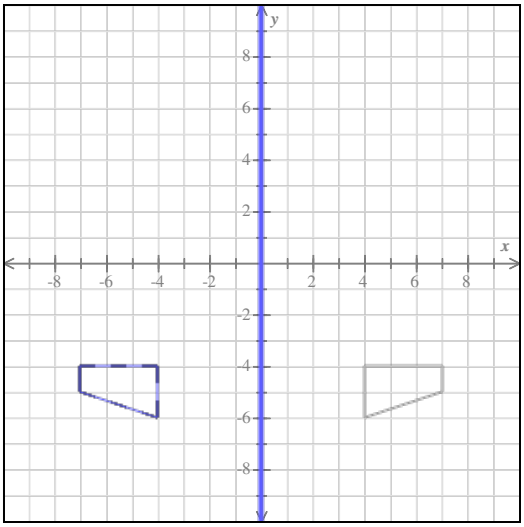
(a)

Not possible

(b)



45.



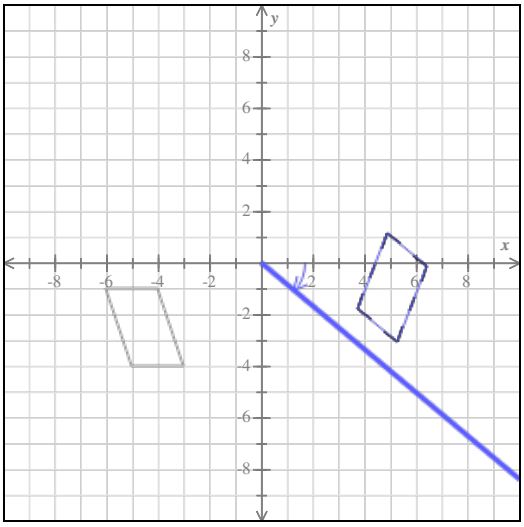
Not possible

46.

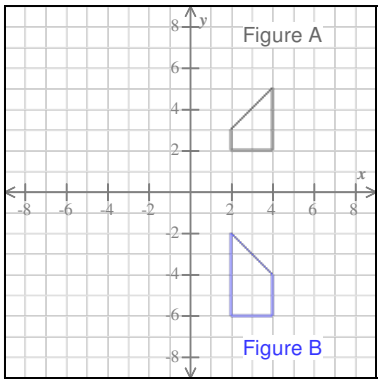
(a)

Not possible

(b)



47.

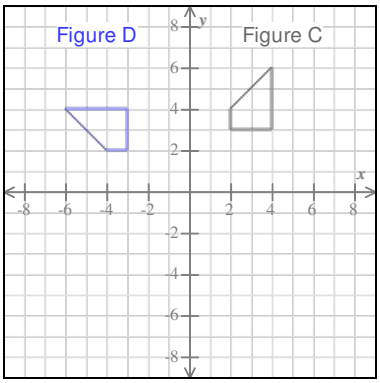


Are Figure A and Figure B congruent?

- ○ Yes
- ◉ No

Which transformation will map Figure A onto Figure B exactly?

- ○ Translate Figure A to the left 3 units
- ○ Translate Figure A down 3 units
- ○ Reflect Figure A over the x-axis
- ○ Reflect Figure A over the y-axis
- ○ Rotate Figure A clockwise $90°$ about the origin
- ○ Rotate Figure A counterclockwise $180°$ about the origin
- ◉ None of these



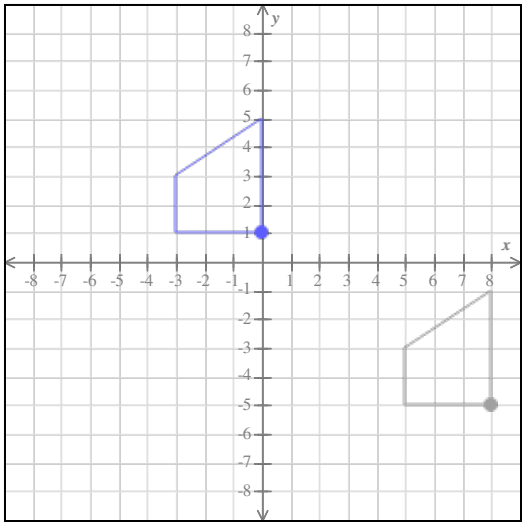
Are Figure C and Figure D congruent?

- ◉ Yes
- ○ No

Which transformation will map Figure C onto Figure D exactly?

- ○ Translate Figure C to the right 5 units
- ○ Translate Figure C up 5 units
- ○ Reflect Figure C over the x-axis
- ○ Reflect Figure C over the y-axis
- ○ Rotate Figure C clockwise $180°$ about the origin
- ◉ Rotate Figure C counterclockwise $90°$ about the origin
- ○ None of these

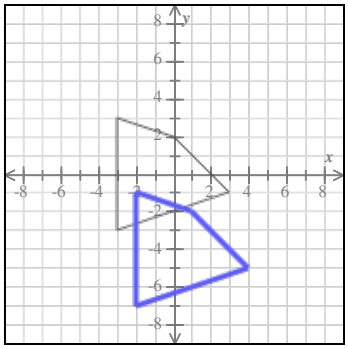
48.



Point in original figure: $(8, -5)$

Point in final figure: $(0, 1)$

49.

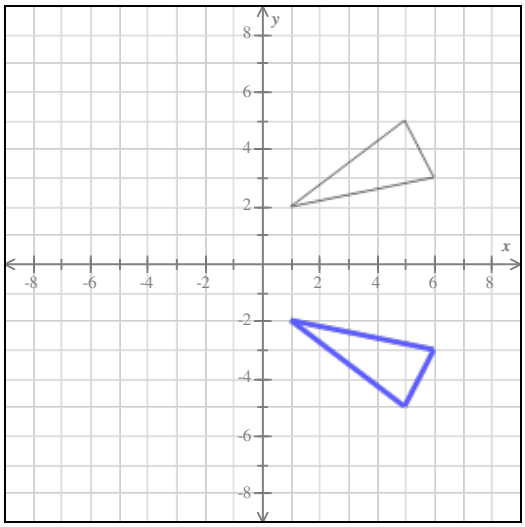


50.

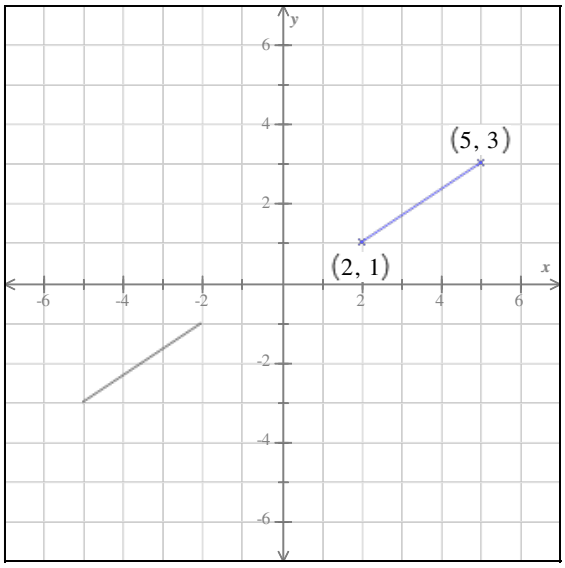
(a) Reflect the point $(-3,\ 5)$ across the x-axis: $(-3,\ -5)$

(b) Reflect the point $(-3,\ 5)$ across the y-axis: $(3,\ 5)$

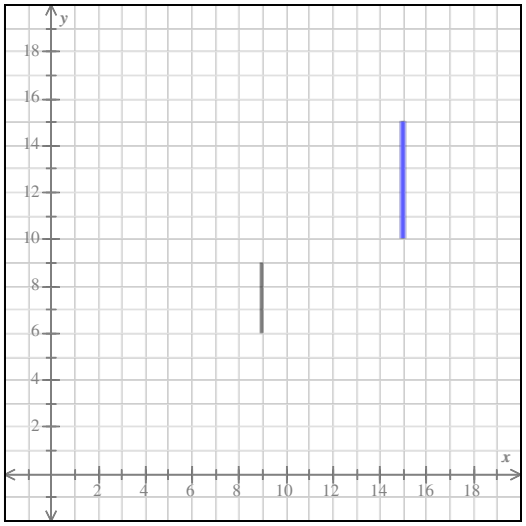
51.



52.



53.



54.

(a) The arrows below show that the coordinates on the left are mapped to the coordinates on the right. Fill in the blanks to give the coordinates after the rotation.

original coordinates → final coordinates

$X\,(-4,\,7) \rightarrow X'(7,\,4)$

$Y\,(3,\,5) \rightarrow Y'(5,\,-3)$

$Z\,(2,\,1) \rightarrow Z'(1,\,-2)$

(b) Choose the general rule below that describes the rotation mapping $\triangle XYZ$ to $\triangle X'Y'Z'$.

- ○ $(x, y) \rightarrow (-x, y)$
- ○ $(x, y) \rightarrow (-y, x)$
- ○ $(x, y) \rightarrow (-x, -y)$
- ○ $(x, y) \rightarrow (x, -y)$
- ○ $(x, y) \rightarrow (-y, -x)$
- ○ $(x, y) \rightarrow (y, x)$
- ◉ $(x, y) \rightarrow (y, -x)$

55.

(a) The arrows below show that the coordinates on the left are mapped to the coordinates on the right. Fill in the blanks to give the coordinates after the translation.

$X\,(-7,\ 5) \rightarrow X'(2,\,0)$

$Y\,(-8,\ 8) \rightarrow Y'(1,\,1)$

$Z\,(-4,\ 4) \rightarrow Z'(5,\,5)$

(b) Choose the general rule below that describes the translation mapping $\triangle XYZ$ to $\triangle X'Y'Z'$.

- ○ $(x,\ y) \rightarrow (9x,\ -5y)$
- ○ $(x,\ y) \rightarrow (5x,\ -9y)$
- ○ $(x,\ y) \rightarrow (-9x,\ 5y)$
- ○ $(x,\ y) \rightarrow (-5x,\ 9y)$
- ◉ $(x,\ y) \rightarrow (x+9,\ y-5)$
- ○ $(x,\ y) \rightarrow (x-9,\ y+5)$
- ○ $(x,\ y) \rightarrow (x-5,\ y+9)$
- ○ $(x,\ y) \rightarrow (x+5,\ y-9)$

56.

(a) The arrows below show that the coordinates on the left are mapped to the coordinates on the right. Fill in the blanks to give the coordinates after the reflection.

original coordinates → final coordinates

$X\,(-3,\,2) \rightarrow X'(-3,\,-2)$

$Y\,(7,\,10) \rightarrow Y'(7,\,-10)$

$Z\,(7,\,4) \rightarrow Z'(7,\,-4)$

(b) Choose the general rule below that describes the reflection mapping $\triangle XYZ$ to $\triangle X'Y'Z'$.

- ○ $(x, y) \rightarrow (-x, -y)$
- ○ $(x, y) \rightarrow (-x, y)$
- ○ $(x, y) \rightarrow (-y, x)$
- ○ $(x, y) \rightarrow (y, x)$
- ○ $(x, y) \rightarrow (-y, -x)$
- ○ $(x, y) \rightarrow (y, -x)$
- ◉ $(x, y) \rightarrow (x, -y)$

57.

(a) The arrows below show that the coordinates on the left are mapped to the coordinates on the right. Fill in the blanks to give the coordinates after the dilation.

original coordinates → final coordinates

$X\,(-6,\,9) \rightarrow X'(-2,\,3)$

$Y\,(3,\,6) \rightarrow Y'(1,\,2)$

$Z\,(-9,\,-6) \rightarrow Z'(-3,\,-2)$

(b) Choose the general rule below that describes the dilation mapping $\triangle XYZ$ to $\triangle X'Y'Z'$.

- ○ $(x, y) \rightarrow (3y, 3x)$
- ◉ $(x, y) \rightarrow \left(\frac{1}{3}x, \frac{1}{3}y\right)$
- ○ $(x, y) \rightarrow \left(\frac{1}{3}y, \frac{1}{3}x\right)$
- ○ $(x, y) \rightarrow \left(\frac{1}{3}x, y\right)$
- ○ $(x, y) \rightarrow \left(\frac{1}{3}x, 3y\right)$
- ○ $(x, y) \rightarrow (3x, 3y)$
- ○ $(x, y) \rightarrow \left(3x, \frac{1}{3}y\right)$
- ○ $(x, y) \rightarrow \left(x, \frac{1}{3}y\right)$