

The recent Google password security enhancement will require students to change their password to one that is longer and contains a series of numeric, alphabetical, and special characters.

The IT Department will be making the following update to student passwords by adding: **"D", "s", "current numeric password", "!"**. *For example: if a student's current password is: 123456 their new password will be: **Ds123456!***

\*If at any time a student forgets their password it can be found in Aeries on the Supplemental Page under Student Password.

**ELECTRONIC DEVICES**

The following is a list of items that are not allowed for use in the classroom. Students who are in possession of any of these items will have them confiscated and subjected through proper disciplinary steps listed below. **The item will then be released to a parent or guardian.**

Electronic devices such as cell phones, MP3 players, I-pods, and video games must be picked up by parents after the second offense.

Delhi High School will not be financially responsible for banned electronic devices that are not permitted on campus. The school is not responsible for electronic devices that are picked up by those whom it was confiscated from who may or may not be the rightful owner. The school reserves the right to refuse to conduct any investigations concerning items that are not permitted on campus. Items that are misplaced or borrowed by other students are the sole responsibility of the student.

1<sup>st</sup> Offense requires that the cell phone/Ipod/device be impounded and **returned to the student on Friday.**

2<sup>nd</sup> Cell phone/Ipod/device impounded and released only to the parent.

3<sup>rd</sup> Offense requires a parent conference.

4<sup>th</sup> Offense may result in an out of **school suspension** for continued defiance.

Items Not Allowed:

- C.D. Players
- MP3 Players
- I-Pods
- Video game devices
- Cigarette Lighters
- Hats

Expectations in this handbook: **Preparing you for college and careers.**

**Objective:** *The students will Review for Exam-6: Transformations and Symmetry to demonstrate their understanding of each topic by achieving an accuracy rate of 70% or higher on Exam-6 tomorrow.*

**STANDARD** G-SRT. Define trigonometric ratios and solve problems involving right triangles.

## WHAT DO YOU NEED?

 *A working Chromebook*

 *Math Notebook* 

 **Review for Exam-6: Transformations and Symmetry**

 **TURN IN LATE OR MISSING WORK**

*\*If accuracy of 70% or higher is not achieved, the student(s) will be required to retake it!*

## Mathematics II



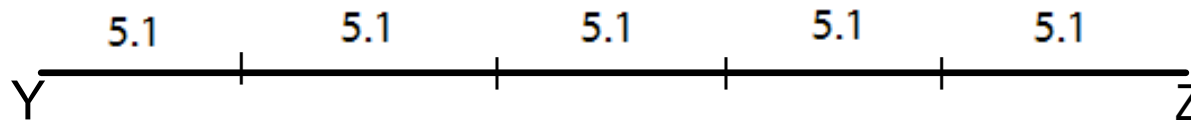
my.hrw.com

Review for Exam-6: Transformations and Symmetry

**Exam-6**



Line segment  $\overline{YZ}$  was used to translate  $ABCDE$ .  $\overline{YZ}$  is 5.1 inches long. What is the length of  $AA' + BB' + CC' + DD' + EE'$ ?

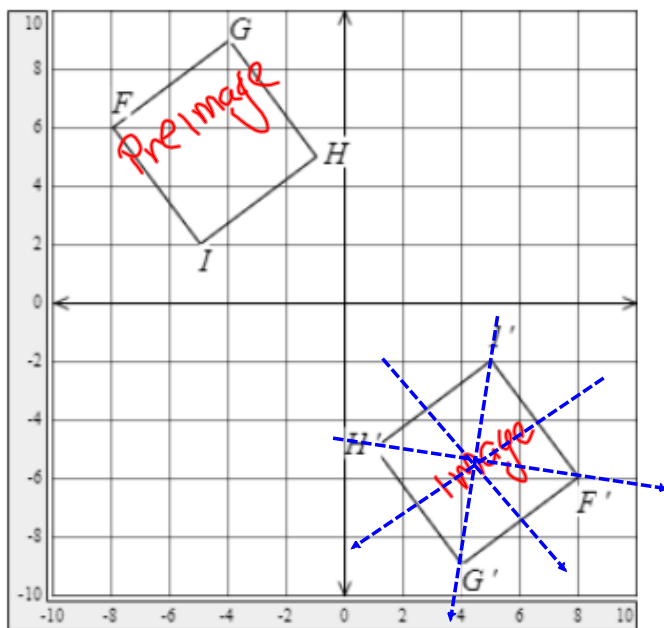


$$\begin{aligned} & AA' + BB' + CC' + DD' + EE' \\ &= 5.1 + 5.1 + 5.1 + 5.1 + 5.1 \\ &= 25.5 \end{aligned}$$

The length of  $AA' + BB' + CC' + DD' + EE'$  is 25.5 inches.

2

Given figure FGHI and its image F'G'H'I', answer the following.



Rules

$R_{90^\circ} (x,y) = (-y, x)$
$R_{180^\circ} (x,y) = (-x, -y)$
$R_{270^\circ} (x,y) = (y, -x)$

Enter an algebraic rule for the rotation shown and then describe the rotation in words.

The rule is  $(x, y) \rightarrow (-x, -y)$ , and the transformation is a rotation of  $180^\circ$ .

Tell whether the figure FGHI has line symmetry, rotational symmetry, both types of symmetry, or no symmetry. If the figure has line symmetry, record the number. If the figure has rotational symmetry, list the angles of rotation that are less than  $360^\circ$ .

$\frac{360}{4} = 90^\circ$

Types of symmetry	Number of lines of symmetry	Angles of rotation
line and rotational symmetry ▼	4	90°, 180°, 270°

3

A line segment with endpoints  $P(1, 2)$  and  $Q(4, 3)$  is reflected across the line  $y = x$ . What are the new coordinates of the endpoints of the line segment?

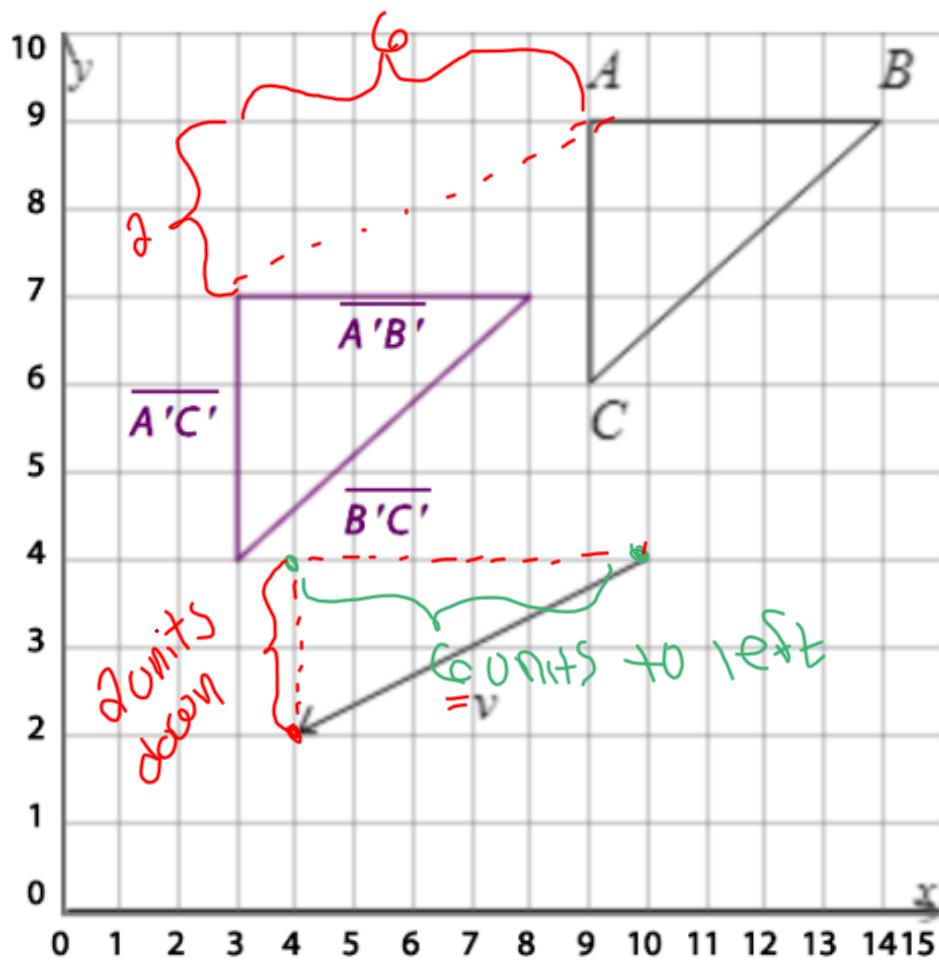
The new coordinates are  $P'(2, 1)$ ,  $Q'(3, 4)$ .

## Reflecting Over Lines:

- $r_{x\text{-axis}}(x, y) = (x, -y)$
- $r_{y\text{-axis}}(x, y) = (-x, y)$
- $r_{y=x}(x, y) = (y, x)$
- $r_{y=-x}(x, y) = (-y, -x)$

4

Draw the image of  $\triangle ABC$  after a translation along vector  $v$ .



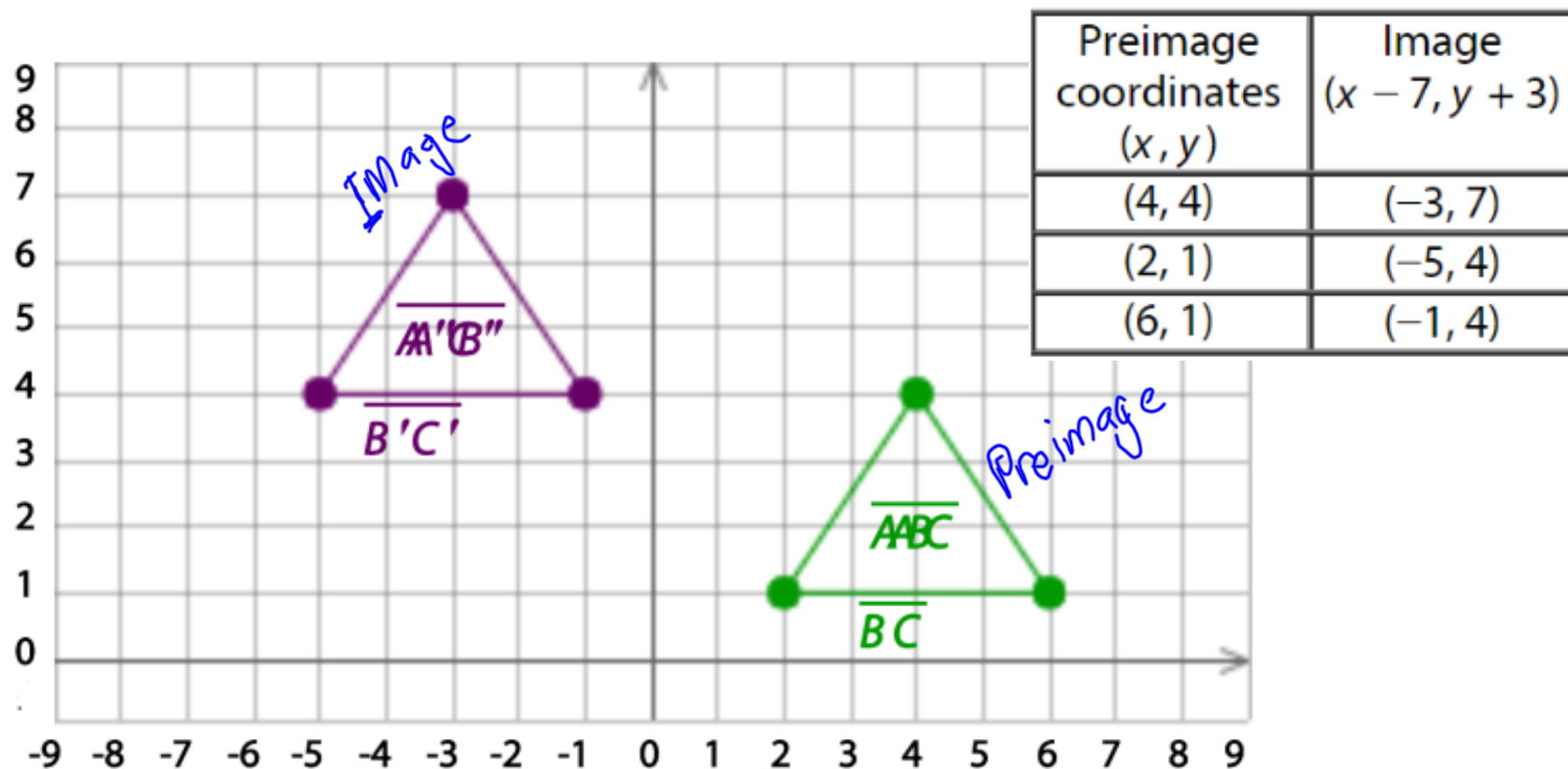
Draw copies of vector  $v$  at vertices  $A$ ,  $B$ , and  $C$  of  $\triangle ABC$ . Then draw segments to connect the terminal points of the copied vectors.



5

Draw the preimage and image of the triangle under a translation along  $\langle -7, 3 \rangle$ .

Triangle with coordinates:  $A(4, 4)$ ,  $B(2, 1)$ ,  $C(6, 1)$ .



Apply the transformation rule to each of the given coordinates of the preimage, which results in the corresponding coordinate of the image.

6

Enter the coordinates of the image under the transformation  $\langle 4, -10 \rangle$ .

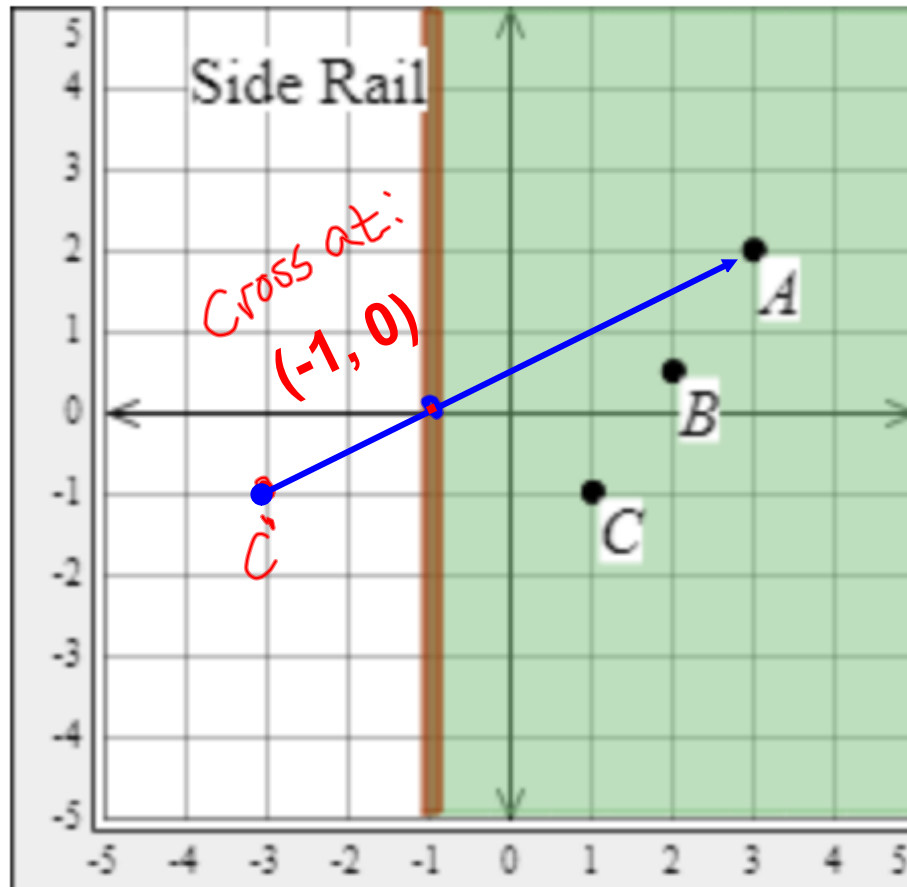
$$(x, y) \rightarrow (x + 4, y - 10)$$

$$(1, -4) \rightarrow (5, -14)$$

$$(6, -13) \rightarrow (10, -23)$$

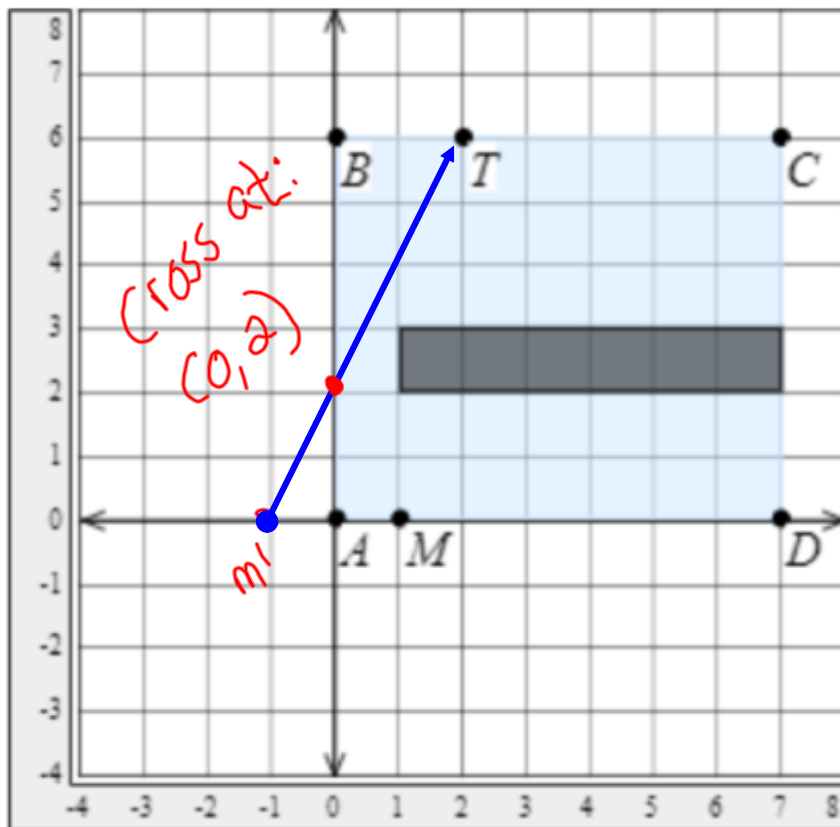
$$(10, -12) \rightarrow (14, -22)$$

7 Hector is playing pool. He wants to use the cue ball  $C$  to hit the ball at point  $A$  without hitting the ball at point  $B$ . To do so, he has to bounce the cue ball off the side rail and into the ball at point  $A$ . Find the coordinates of the exact point along the side rail that Hector should aim for.



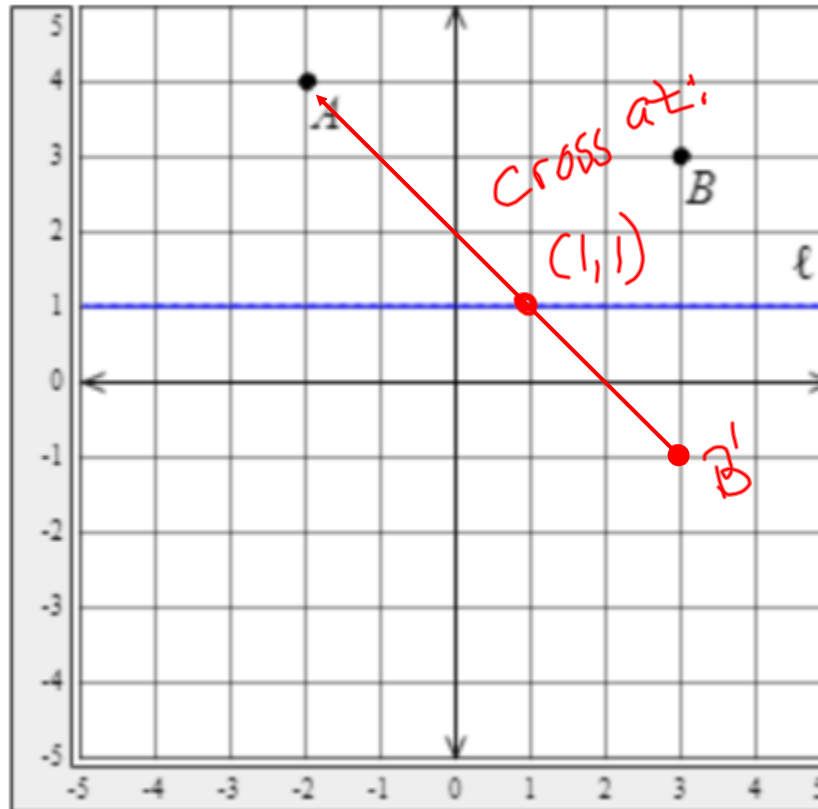
Cara should aim for the point  along the side rail.

**8** Luz is playing a video game. The object of the game is to roll a marble into a target. In the figure, the shaded rectangular area represents the video screen and the black rectangle is a barrier. Because of the barrier, it is not possible to roll the marble  $M$  directly into the target  $T$ . At what point should Luz aim the marble so that it will bounce off a wall and roll into the target?



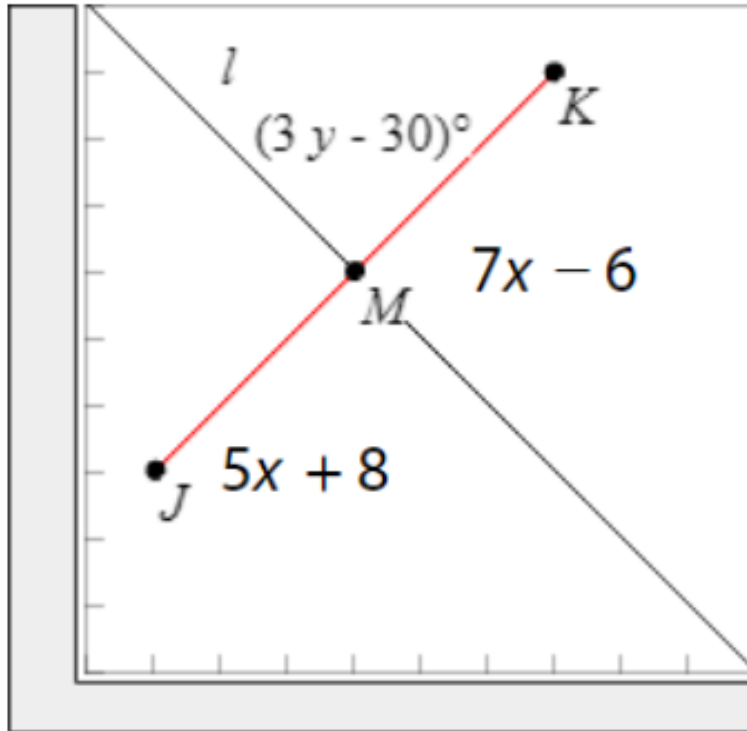
Jamar should aim for the point  along the edge of the screen.

9 A trail designer is planning two trails that connect campsites A and B to a point on the river, line  $\ell$ . She wants the total length of the trails to be as short as possible. At what point should the trails meet the river? Use a problem-solving model to design the trails and check your answer for reasonableness.



The trail designer will have the trails meet the river at .

10 In the figure, point K is the image of point J under a reflection across line  $l$ .  
Enter the length of  $\overline{JM}$ .



$$\overline{JM} = \overline{KM}.$$

$$5x + 8 = 7x - 6$$

$$8 = 2x - 6$$

$$14 = 2x$$

$$x = 7$$

Substitute 7 into the equation of  $\overline{JM}$ .

$$\overline{JM} = 5x + 8$$

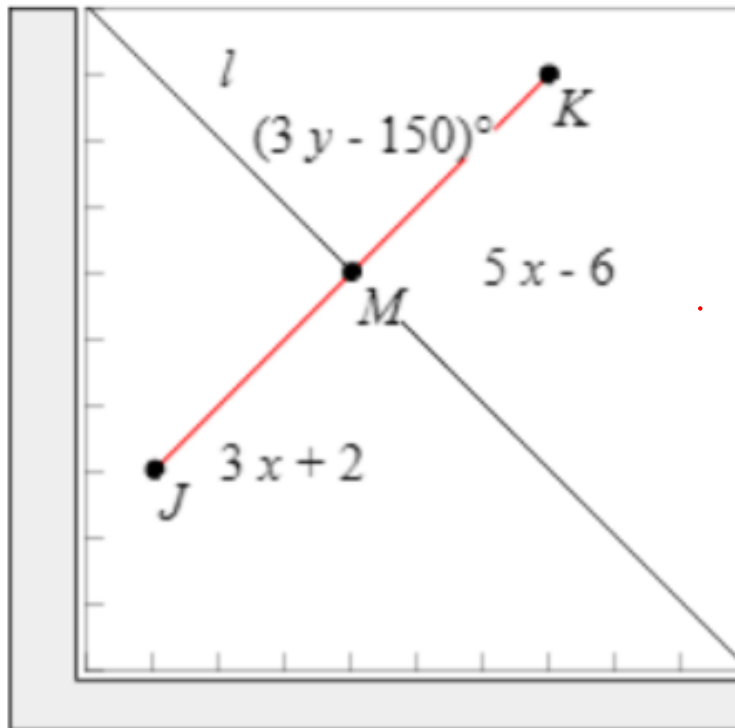
$$= 5(7) + 8$$

$$= 43$$

The measure of  $\overline{JM}$  is .

11

In the figure, point  $K$  is the image of point  $J$  under a reflection across line  $l$ . Enter the value of  $y$ .

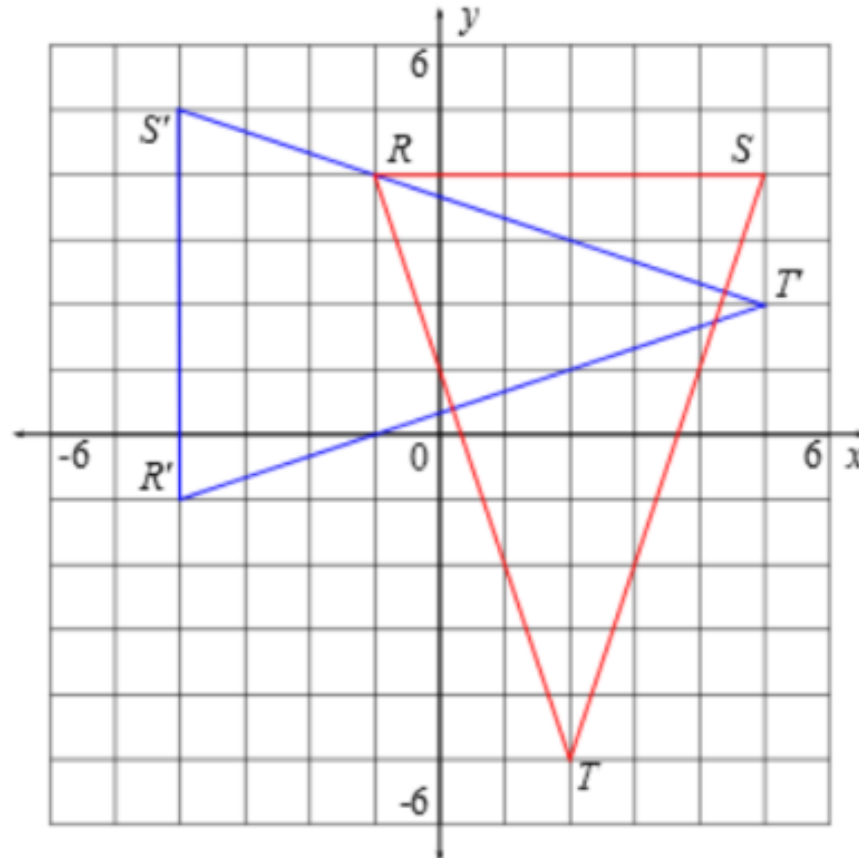


$$\begin{array}{r}
 3y - 150 = 90 \\
 \quad \quad \quad +150 \quad \quad +150 \\
 \hline
 3y = 240 \\
 y = 80
 \end{array}$$

The value of  $y$  is .

The line  $l$  is the line of reflection, which is perpendicular to  $\overline{JK}$ .

12



Enter the algebraic rule for the rotation shown in terms of  $x$  and  $y$ . Then complete the description of the transformation in words.

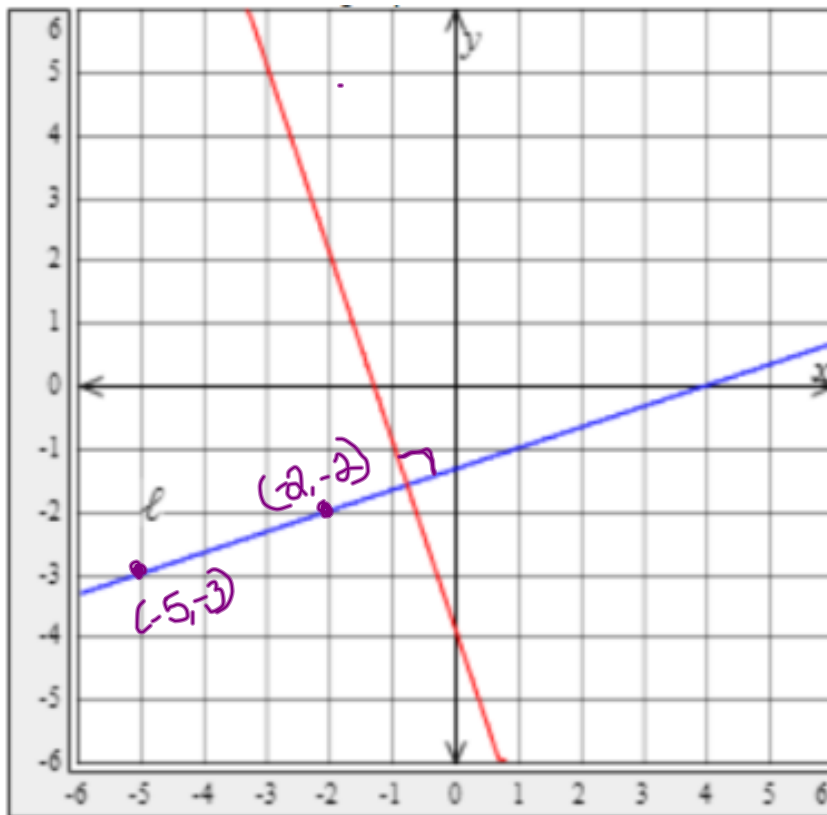
$$(x, y) \rightarrow (-y, x)$$

The transformation is a counterclockwise rotation of  $90^\circ$ .



13

Enter the slope-intercept equation for the image of line  $l$  after a clockwise rotation of  $90^\circ$ . (Hint: To find the image of line  $l$ , choose two or more points on the line and find the images of the points.)



Step 1: Spot two nice points on the BLUE line

The line passes through  
 $A(5, 3)$  and  $B(2, 2)$ .

Step 2: Apply the rule:  $(x, y) \rightarrow (y, x)$ .

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

$$B(2, 2) \rightarrow B'(-2, 2)$$

Step 3: Find the slope of the rotated line.

$$m = \frac{B'_y - A'_y}{B'_x - A'_x} = \frac{2 - 5}{-2 - (-3)} = -3$$

Step 4: Substitute one of the points and the slope into the point-slope formula and solve for  $y$ .

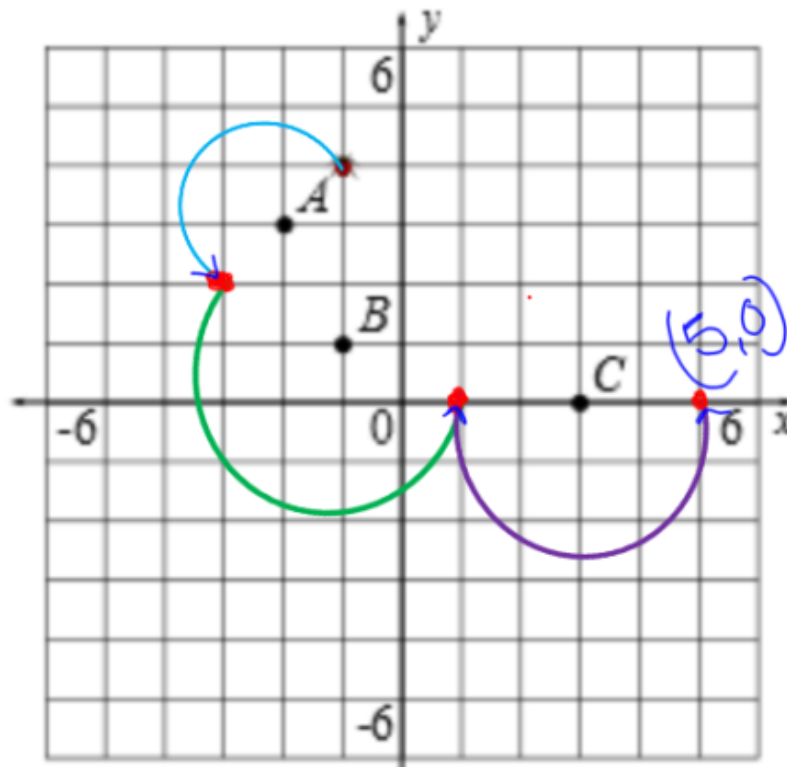
$$y - y_1 = m(x - x_1)$$

$$y - (2) = -3(x - (-2))$$

$$y = -3x - 4$$

14

An animator is drawing a scene in which a ladybug moves around three mushrooms. The figure shows the starting position of the ladybug. The animator rotates the ladybug  $180^\circ$  around mushroom A, then  $180^\circ$  around mushroom B, and finally  $180^\circ$  around mushroom C. What are the final coordinates of the ladybug?

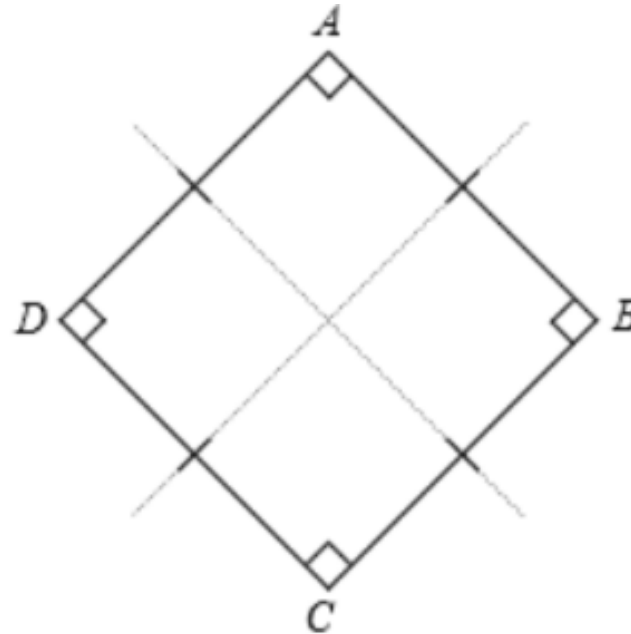


\* Move in the opposite direction starting with point A and working towards point C.

The final coordinates of the ladybug are (, ).

If the ladybug is 3 units above and 2 units to the right of a point, a  $180^\circ$  rotation will leave it 3 units below and 2 units to the left of the point.

15



Part 1

Tell whether the figure has line symmetry, rotational symmetry, both types of symmetry, or no symmetry.

The figure has  symmetry.

Part 2

How many lines of symmetry does the figure have? Enter the comma-separated list of the angles of rotation less than  $360^\circ$ .

The figure has  lines of symmetry.

The angles of rotation are

$$\frac{360}{4} = 90(1), 90(2), 90(3)$$

\* The other angles of rotation for the figure are the multiples of  $90^\circ$  that are less than  $360^\circ$ .



Never say,  
"I can't"  
Always say,  
"I'll try"