

Directions: Write the rule of the transformation.

1) A triangle ABC is translated 5 units left and 2 units up.

$$ABC(x, y) \rightarrow A'B'C'(x-5, y+2)$$

2) A line segment DE is translated 2 units right and 1 unit up.

$$DE(x, y) \rightarrow D'E'(x+2, y+1)$$

3) A square MNOP is translated 10 units right and 5 units down.

$$MNOP(x, y) \rightarrow M'N'O'P'(x+10, y-5)$$

4) A line segment XY is translated 7 units left.

$$XY(x, y) \rightarrow X'Y'(x-7, y)$$

Directions: Describe the translation.

5) $(x, y) \rightarrow (x, y-3)$

down 3

6) $(x, y) \rightarrow (x-1, y-6)$

Left 1, down 6

7) $(x, y) \rightarrow (x+3, y)$

Right 3

8) $(x, y) \rightarrow (x-2, y+1)$

Left 2, up 1

9) $(x, y) \rightarrow (x+4, y+6)$

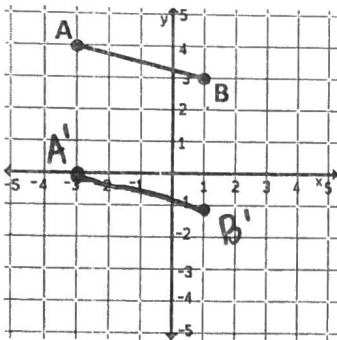
Right 4, up 6

10) $(x, y) \rightarrow (x-1, y+5)$

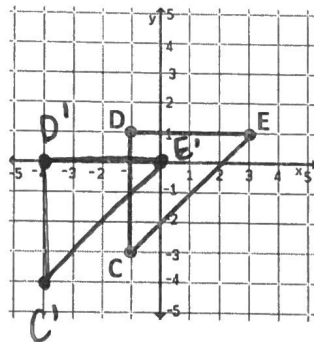
Left 1, up 5

Directions: Complete the translation of the new image. If the rule was provided, describe the translation. If the translation was described, write the rule.

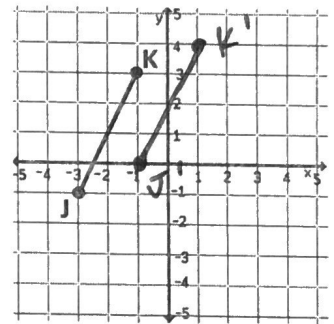
11) $AB(x, y) \rightarrow A'B'(x, y-4)$



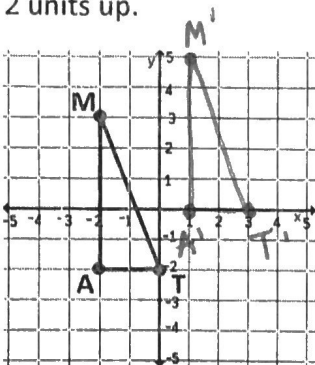
12) $CDE(x, y) \rightarrow C'D'E'(x-3, y-1)$



13) $JK(x, y) \rightarrow J'K'(x+2, y+1)$

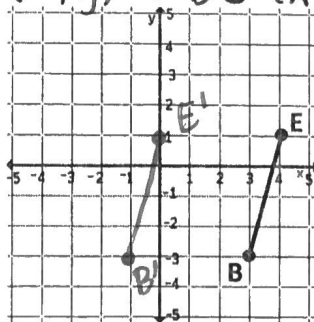


14) Translate 3 units right & 2 units up.

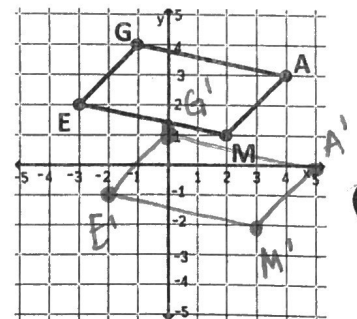


15) Translate ~~ABC~~ ^{BE} by 4 units left.

$$BE(x, y) \rightarrow B'E'(x-4, y)$$



16) Translate 1 unit right & 3 units down.



$$MAT(x, y) \rightarrow M'A'T'(x+3, y+2)$$

$$GAME(x, y) \rightarrow G'A'M'E'(x+1, y-3)$$

Directions: Find the missing point using the given information.

7) $A(3, 7)$

Rule: $(x, y) \rightarrow (x-1, y-6)$

Find A' .

$A(3, 7) \rightarrow A'(2, 1)$

18) $B'(-4, 1)$

$(x, y) \rightarrow (x-2, y+1)$
Description: Translate 2 left & 1 up.

Find B.

$B(-2, 0) \rightarrow B'(-4, 1)$

19) $C'(6, -3)$

Rule: $(x, y) \rightarrow (x+9, y-1)$

Find C.

$C(-3, -2) \rightarrow C'(6, -3)$

20) Pre-Image: $(-5, -7)$

Description: Translate 5 right.

Find the image coordinate.

$(x, y) \rightarrow (x+5, y)$
 $(-5, -7) \rightarrow (0, -7)$

22) Pre-Image $(3\frac{1}{6}, -2\frac{3}{8})$

Rule: $(x, y) \rightarrow (x + \frac{24}{3}, y + 5\frac{3}{8})$

$(3\frac{1}{6}, -2\frac{3}{8}) \rightarrow (3\frac{5}{6}, 3)$

21) Image: $(6, -2)$

Description: Translate 1.6 left & 2.4 down

$(7.6, 0.4) \rightarrow (6, -2)$

$(x, y) \rightarrow (x-1.6, y-2.4)$

Directions: Solve each problem.

pre-image \rightarrow Image

23) Shannon and Meg are throwing a ball. Shannon is standing at $(4, -2)$, and Meg is standing at $(14, 11)$. What rule could be used to describe the translation from Shannon to Meg?

$(x, y) \rightarrow (x+10, y+13)$

24) A group of students walk 8 units left and then 4 units up. They then walk 12 units left and 1 unit down. Finally, they walk 3 units right and 7 units up. What rule could be used to show their both their initial and final position?

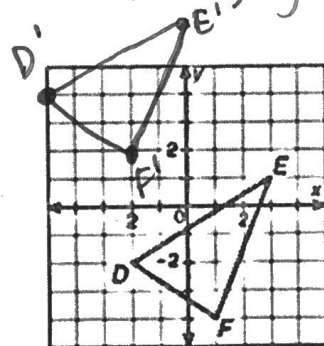
Step-by-Step: $(x, y) \rightarrow (x-8, y+4) \rightarrow (x-12, y-1) \rightarrow (x+3, y+7)$

Initial-to-Final: $(x, y) \rightarrow (x-17, y+10)$

25) $\triangle FED$ is translated so that the image of D is at $(-5, 4)$. Describe the translation that has occurred. Then, write a rule to describe this translation.

Left 3, up 6

$(x, y) \rightarrow (x-3, y+6)$



26) $M(-1, 4)$ is translated using the rule $(x, y) \rightarrow (x+4, y-10)$. In what quadrant will the image of M be found after the rule is applied?

$M(-1, 4) \rightarrow M'(3, -6)$
quadrant 4

