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) $(x, y) \rightarrow {}^{\iota}(x, y-3)$

Down 3

6) $(x, y) \rightarrow {}^{\iota}(x-1, y-6)$

Left 1, down 6

7) $(x, y) \rightarrow {}^{\iota}(x+3, y)$

Right 3

8) $(x, y) \rightarrow {}^{\iota}(x-2, y+1)$

Left 2, up 1

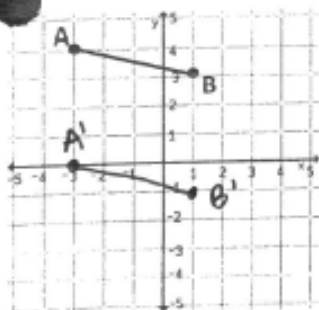9) $(x, y) \rightarrow {}^{\iota}(x+4, y+6)$

Right 4, up 6

10) $(x, y) \rightarrow {}^{\iota}(x-1, y+5)$
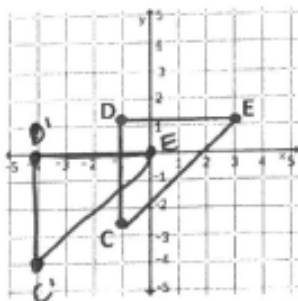
Left 1, up 5

Directions: Complete the translation of the new image. If the rule was provided, describe the translation. If the translation was described, write the rule.
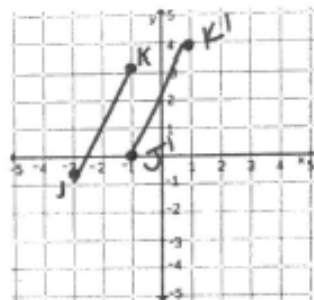
11) $AB(x, y) \rightarrow A'B'(x, y-4)$
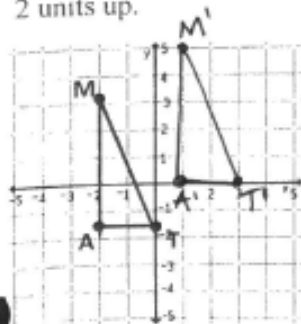

down 4

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

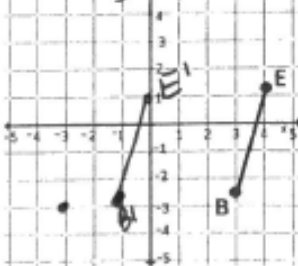

Left 3, down 1

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

Right 2, up 1

14) Translate 3 units right & 2 units up.
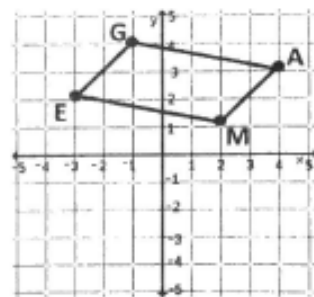

$$MAT(x, y) \rightarrow M'A'T'(x+3, y+2)$$

15) Translate ABE by 4 units left.

$$BE(x, y) \rightarrow (x-4, y)$$

16) Translate 1 unit right & 3 units down.

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

Directions: Find the missing point using the given information.

17) A(3, 7)
Rule: $(x, y) \rightarrow {}'(x - 1, y - 6)$
Find A'.

$$A'(2, 1)$$

18) B'(–4, 1)
Description: Translate 2 left & 1 up.
Find B.

$$B(-2, 0)$$

19) C'(6, –3)
Rule: $(x, y) \rightarrow {}'(x + 9, y - 1)$
Find C.

$$C(-3, -2)$$

20) Pre-Image: (–5, –7)
Description: Translate 5 right.
Find the image coordinate.

$$(0, -7)$$

21) Image: (6, –2)

Description: Translate 1.6 left & 2.4 down

$$(7.6, 0.4)$$

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

Rule: $(x, y) \rightarrow {}'\left(x + \frac{2}{3}, y + 5\frac{3}{8}\right)$

$$\left(3\frac{5}{6}, 3\right)$$

Directions: Solve each problem.

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?

$$(x, y) \rightarrow (x - 17, y + 10)$$

25) ∆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.

up 6, left 3

$$(x, y) \rightarrow (x - 3, y + 6)$$
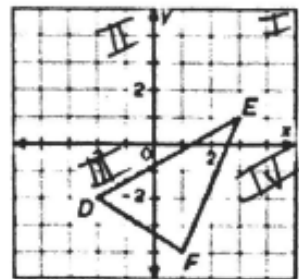
26) M(–1, 4) is translated using the rule $(x, y) \rightarrow {}'(x + 4, y - 10)$. In what quadrant will the image of M be found after the rule is applied?

IV (quadrant 4)