1.2 Translations and Rules **Geometry**

Directions: Write the rule of the transformation.

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

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

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

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

Directions: Describe the translation.

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

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

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

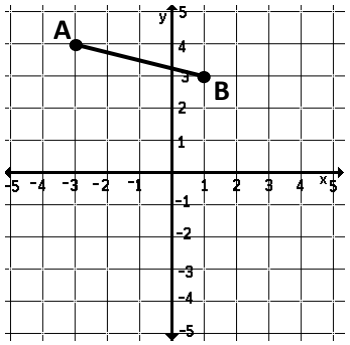
8) $(x, y) \rightarrow '(x - 2, y + 1)$

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

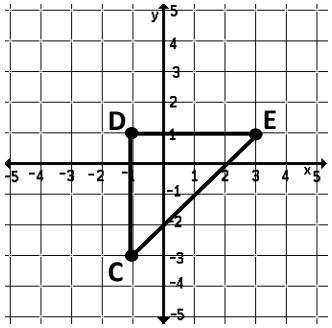
10) $(x, y) \rightarrow '(x - 1, y + 5)$

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

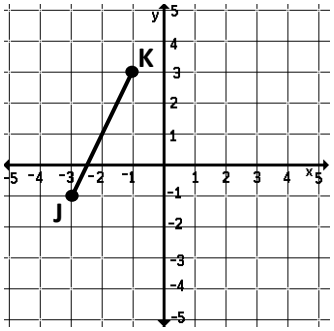
11) $AB(x, y) \rightarrow A'B'(x, y - 4)$



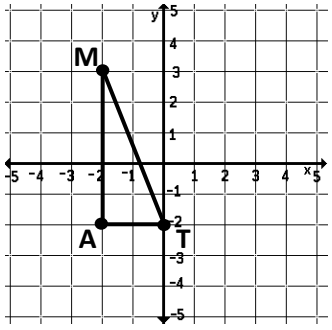
12) $CDE\ (x, y) \rightarrow C'D'E'\ (x - 3, y - 1)$



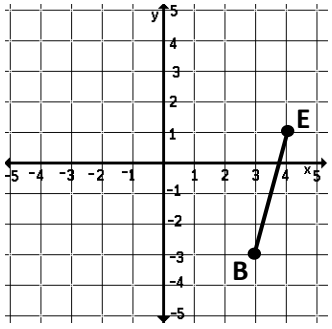
13) $JK(x, y) \rightarrow J'K'(x + 2, y + 1)$



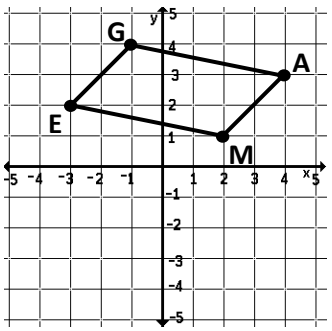
14) Translate 3 units right & 2 units up.



15) Translate ABC by 4 units left.



16) Translate 1 unit right & 3 units down.



Directions: Find the missing point using the given information.

17) A(3, 7)
Rule: (x, y) → ‘(x – 1, y – 6)
Find A’.

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

19) C’(6, –3)
Rule: (x, y) → ‘(x + 9, y – 1)
Find C.

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

21) Image: (6, –2)
Description: Translate 1.6 left & 2.4 down

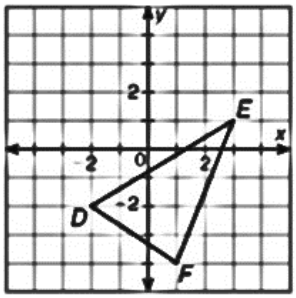
22) Pre-Image $\left(3\frac{1}{6}, -2\frac{3}{8}\right)$
Rule: (x, y) → ‘$\left(x + \frac{2}{3}, y + 5\frac{3}{8}\right)$

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?

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?

25) ΔFED 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.



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