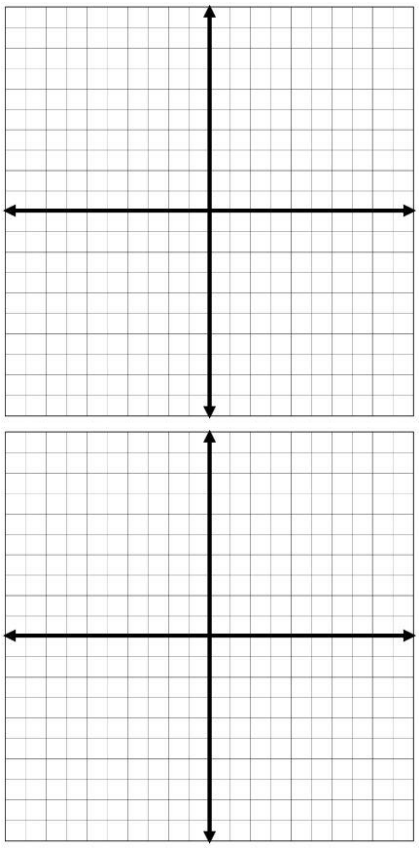
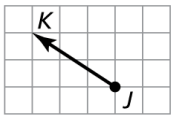
Name_____ Date_____

4.1 Practice A



1. Name the vector and write its component form.

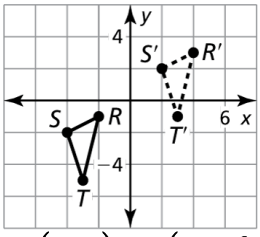


2. a) The vertices of $\triangle ABC$ are $A(2, 3)$, $B(-1, 2)$, and $C(0, 1)$. Translate $\triangle ABC$ using the vector $\langle 1, -4 \rangle$. Graph $\triangle ABC$ and its image.

b) The vertices of $\triangle FGH$ are $F(-2, -6)$, $G(3, 0)$, and $H(1, -4)$. Translate $\triangle FGH$ using the vector $\langle -2, 7 \rangle$. Graph $\triangle FGH$ and its image.

3. Find the component form of the vector that translates $A(3, -2)$ to $A'(-1, 4)$.

4. Write a rule for the translation of $\triangle RST$ to $\triangle R'S'T'$.



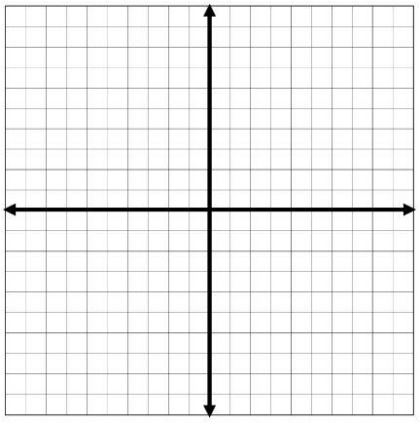
In Exercises 5 and 6, use the translation $(x, y) \rightarrow (x + 1, y - 3)$ to find the image of the given point.

5. $Q(5, 9)$

6. $M(-3, -8)$

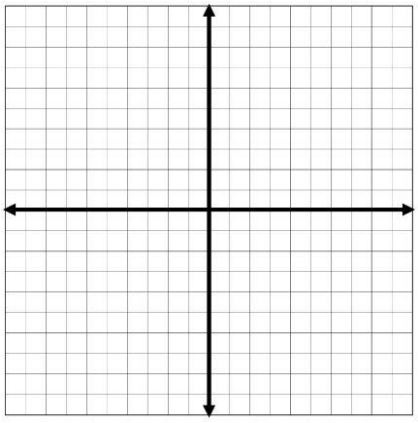
In Exercises 7 and 8, graph $\triangle CDE$ with vertices $C(-1, 3)$, $D(0, -2)$, and $E(1, 1)$ and its image after the given translation or composition.

7. Translation: $(x, y) \rightarrow (x - 3, y + 1)$



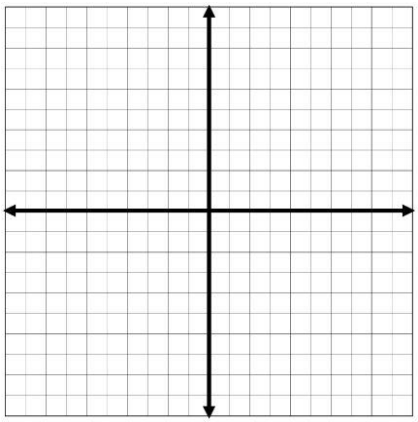
8. Translation: $(x, y) \rightarrow (x + 10, y - 8)$

Translation: $(x, y) \rightarrow (x - 7, y + 15)$



9. You want to plot the collinear points $A(-2, 3)$, $A'(x, y)$, and $A''(3, 7)$ on the same coordinate plane. Do you have enough information to find the values of x and y? Explain your reasoning.

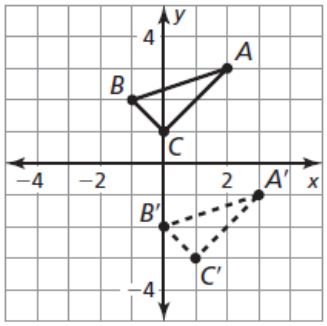
10. Graph any triangle and translate it in any direction. Draw translation vectors for each vertex of the triangle. Is there a geometric relationship between all the translation vectors? Explain why this makes sense in terms of the slope of the line.



4.1 Practice A

1. $\overrightarrow{JK}$; $\langle -3, 2 \rangle$

2. $A'(3, -1)$, $B'(0, -2)$, $C'(1, -3)$



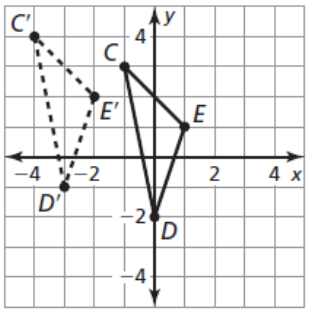
3. $\langle -4, 6 \rangle$

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

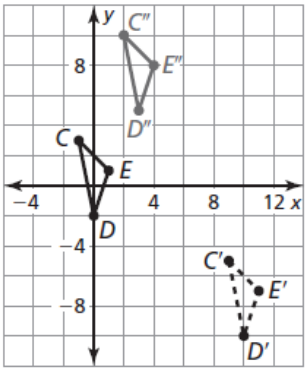
5. $Q'(6, 6)$

6. $M'(-2, -11)$

7.



8.



9. no; *Sample answer:* The translation from A to A' could be different than the translation from A' to A''.

10. $(x, y) \rightarrow (x - 2, y - 3)$; 0.25 mi