

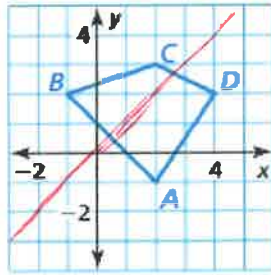
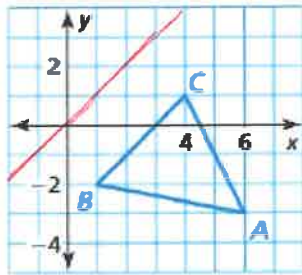
In Exercises 7–12, graph $\triangle JKL$ and its image after a reflection in the given line. (See Example 1.)

- 7. $J(2, -4), K(3, 7), L(6, -1)$; x -axis $J'(2, 4)$ $K'(3, -7)$ $L'(6, 1)$
- 8. $J(5, 3), K(1, -2), L(-3, 4)$; y -axis $J'(-5, 3)$ $K'(-1, -2)$ $L'(3, 4)$
- 9. $J(2, -1), K(4, -5), L(3, 1)$; $x = -1$ $J'(-4, -1)$ $K'(-6, -5)$ $L'(-5, 1)$
- 10. $J(1, -1), K(3, 0), L(0, -4)$; $x = 2$ $J'(3, -1)$ $K'(1, 0)$ $L'(4, -4)$
- 11. $J(2, 4), K(-4, -2), L(-1, 0)$; $y = 1$ $J'(2, -2)$ $K'(-4, 4)$ $L'(-1, 2)$
- 12. $J(3, -5), K(4, -1), L(0, -3)$; $y = -3$ $J'(3, -1)$ $K'(4, -5)$ $L'(0, -3)$

In Exercises 13–16, graph the polygon and its image after a reflection in the given line. (See Examples 2 and 3.)

13. $y = x$

14. $y = x$

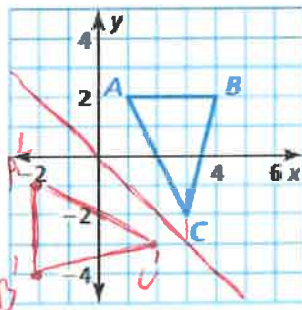
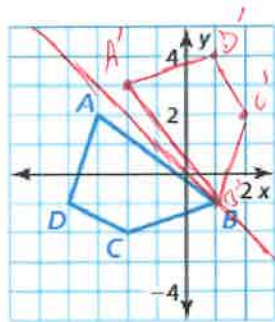


- (13) $A'(-3, 6)$
- $B'(-2, 1)$
- $C'(1, 4)$

- (14) $A'(-1, 2)$
- $B'(2, -1)$
- $C'(3, 2)$
- $D'(2, 4)$

15. $y = -x$

16. $y = -x$



- (15) $A'(-2, 3)$
- $B'(1, -1)$
- $C'(2, 2)$
- $D'(1, 4)$

- (16) $A'(-2, -1)$
- $B'(-2, -4)$
- $C'(2, -3)$

off graph

In Exercises 17–20, graph $\triangle RST$ with vertices $R(4, 1)$, $S(7, 3)$, and $T(6, 4)$ and its image after the glide reflection. (See Example 4.)

17. Translation: $(x, y) \rightarrow (x, y - 1)$

Reflection: in the y -axis

18. Translation: $(x, y) \rightarrow (x - 3, y)$

Reflection: in the line $y = -1$

19. Translation: $(x, y) \rightarrow (x, y + 4)$

Reflection: in the line $x = 3$

20. Translation: $(x, y) \rightarrow (x + 2, y + 2)$

Reflection: in the line $y = x$

(17) $R'(4, 0)$ $S'(7, 2)$ $T'(6, 3)$

$R''(-4, 0)$ $S''(-7, 2)$ $T''(-6, 3)$

(18) $R'(1, 1)$ $S'(4, 3)$ $T'(3, 4)$

$R''(1, -3)$ $S''(4, -5)$ $T''(3, -6)$

(19) $R'(4, 5)$ $S'(7, 7)$ $T'(6, 8)$

$R''(2, 5)$ $S''(-1, 7)$ $T''(0, 8)$

(20) $R'(6, 3)$ $S'(9, 5)$ $T'(8, 6)$

$R''(3, 6)$ $S''(5, 9)$ $T''(6, 8)$

21. Reflect $\triangle LPQ$ over the line $y = 2x - 1$, given $L(3, 1)$, $P(4, -2)$, and $Q(-1, -3)$.

Graph $\triangle LPQ$, the line of reflection, and $\triangle L'P'Q'$, all on the same graph.

following steps from notes

point $L(3, 1)$

(1) $m = 2$

(2) $\perp_m = -\frac{1}{2}$ Through $(3, 1)$

$1 = -\frac{1}{2}(3) + b$

$\frac{5}{2} = b$

$y = -\frac{1}{2}x + \frac{5}{2}$

(3) $2x - 1 = -\frac{1}{2}x + \frac{5}{2}$

$x = \frac{7}{5}$

$y = \frac{9}{5}$

Point of intersection $(\frac{7}{5}, \frac{9}{5})$

(4) $(\frac{7}{5}, \frac{9}{5})$ is the midpoint of $L(3, 1)$ and L'

$\frac{7}{5} = \frac{3+x}{2}$

$\frac{9}{5} = \frac{1+y}{2}$

$-\frac{1}{5} = x$

$\frac{13}{5} = y$

$L'(-\frac{1}{5}, \frac{13}{5})$

$L'(-\frac{1}{5}, \frac{13}{5})$

$P'(-\frac{16}{5}, \frac{8}{5})$

$Q'(-\frac{11}{5}, -\frac{7}{5})$