

For 1-8, reflect the point over the given line.

USE TOP GRAPH

1. $A = (2, 3)$ over x-axis

2. $B = (-1, 4)$ over y-axis

$A' =$ _____

$B' =$ _____

3. $C = (5, -2)$ over y-axis

4. $D = (-7, -1)$ over x-axis

$C' =$ _____

$D' =$ _____

USE BOTTOM GRAPH

5. $E = (6, 8)$ over $x = 6$

6. $F = (7, -5)$ over $x = 6$

$E' =$ _____

$F' =$ _____

7. $G = (5, 5)$ over $y = -1$

8. $H = (-4, -6)$ over $y = -1$

$G' =$ _____

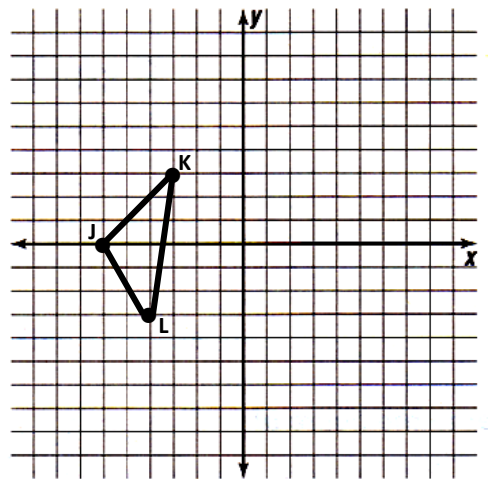
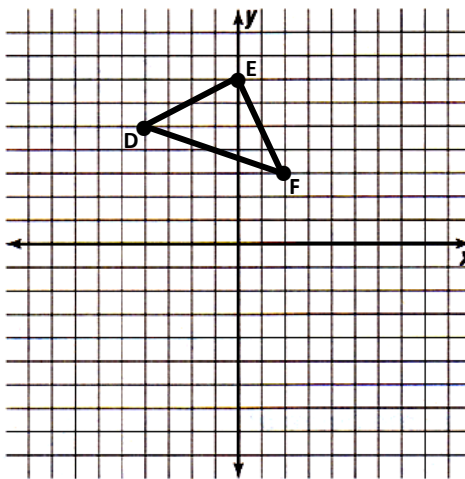
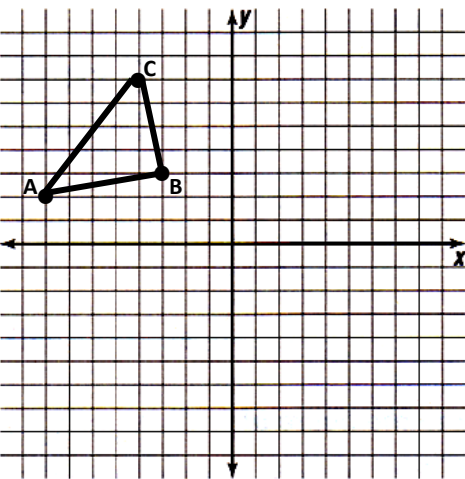
$H' =$ _____

Reflect each figure over the given line.

9. x-axis

10. $y = 1$

11. $x = 2$



$A' =$ _____ $B' =$ _____ $C' =$ _____

$D' =$ _____ $E' =$ _____ $F' =$ _____

$J' =$ _____ $K' =$ _____ $L' =$ _____

For 12-20, translate each point by the given vector.

12. $A = (3, 8)$ by $\langle 3, 2 \rangle$

$A' =$ _____

13. $B = (-2, -5)$ by $\langle 4, 7 \rangle$

$B' =$ _____

14. $C = (-3, 5)$ by $\langle 5, -2 \rangle$

$C' =$ _____

15. $D = (-4, -8)$ by $\langle 6, -2 \rangle$

$D' =$ _____

16. $E = (8, 5)$ by $\langle -2, -5 \rangle$

$E' =$ _____

17. $F = (6, -5)$ by $\langle -3, 4 \rangle$

$F' =$ _____

18. $G = (2, -6)$ by $\langle 2, 8 \rangle$

$G' =$ _____

19. $H = (-4, 3)$ by $\langle 0, -4 \rangle$

$H' =$ _____

20. $I = (11, 11)$ by $\langle -11, -11 \rangle$

$I' =$ _____

For 21-29, find the vector of each translation.

21. $J = (3, 8)$ $J' = (-1, 11)$

vector = _____

22. $K = (-2, -5)$ $K' = (-6, 3)$

vector = _____

23. $L = (-3, 5)$ $L' = (-1, -1)$

vector = _____

24. $M = (-2, 4)$ $M' = (5, -1)$

vector = _____

25. $N = (4, 8)$ $N' = (1, 6)$

vector = _____

26. $O = (-8, 9)$ $O' = (-3, -1)$

vector = _____

27. $P = (76, 34)$ $P' = (23, 85)$

vector = _____

28. $P = (-4, 7)$ $P' = (-6, 13)$

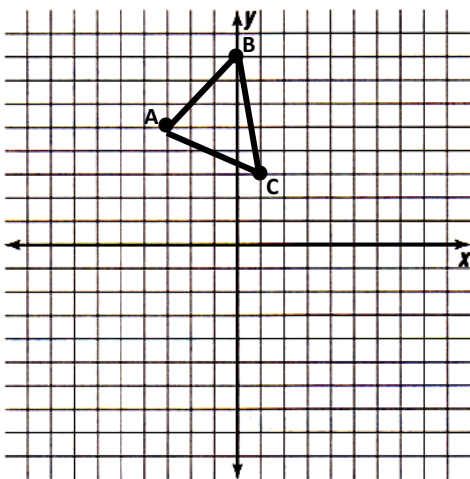
vector = _____

29. $Q = (6, 3)$ $Q' = (8, 2)$

vector = _____

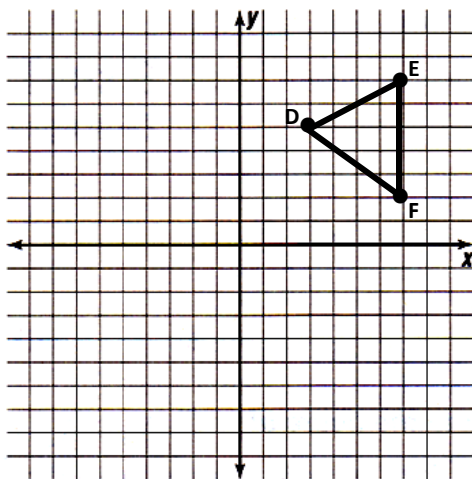
Translate each figure by the given vector.

30. $\langle -3, -7 \rangle$



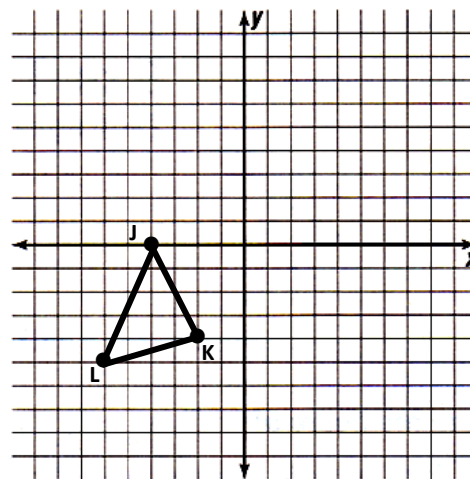
$A' =$ _____ $B' =$ _____ $C' =$ _____

31. $\langle -9, 2 \rangle$



$D' =$ _____ $E' =$ _____ $F' =$ _____

32. $\langle 8, 5 \rangle$



$J' =$ _____ $K' =$ _____ $L' =$ _____