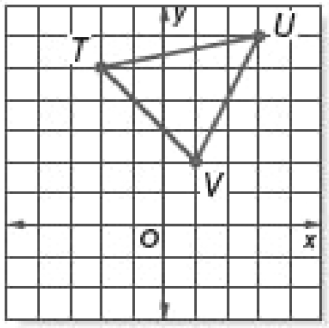
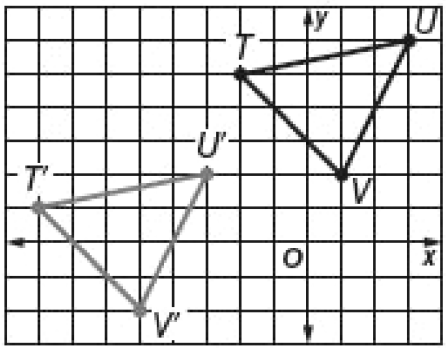
Name: School: Grade: Class:

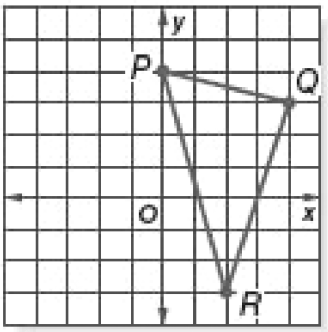
11-8 Translations - Practice and Problem Solving

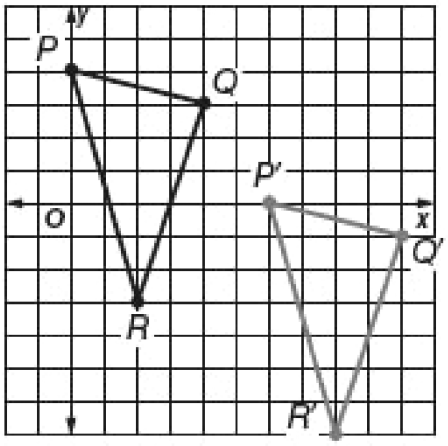
5. Translate triangle *TUV* 6 units left and 4 units down. Graph triangle *T'U'V'*.





7. Translate triangle *PQR* 6 units right and 4 units down. Graph triangle *P'Q'R'*.

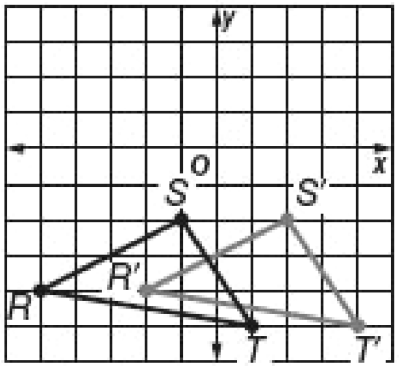




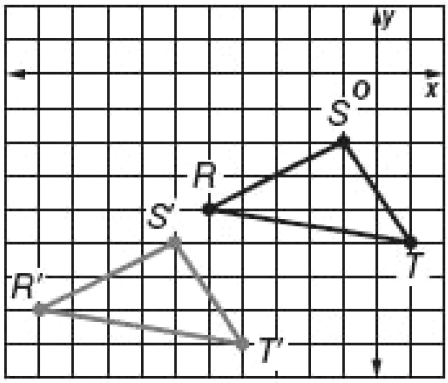
Name: School: Grade: Class:

CANDLES A decorative candle on a table has vertices *R*(–5, -4), *S*(–1, –2), and *T*(1, –5). Find the vertices of the candle after each translation. Then graph the figure and its translated image.

9. 3 units right

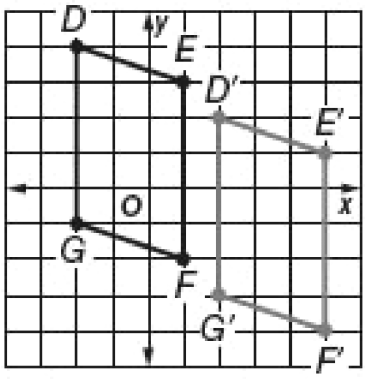


11. 5 units left, 3 units down



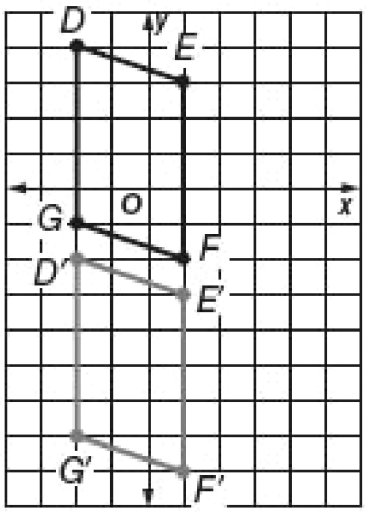
RUGS A rug has vertices *D*(–2, 4), *E*(1, 3), *F*(1, –2), and *G*(–2, –1). Find the vertices of the rug after each translation. Then graph the figure and its translated image.

13. 4 units right, 2 units down



Name: School: Grade: Class:

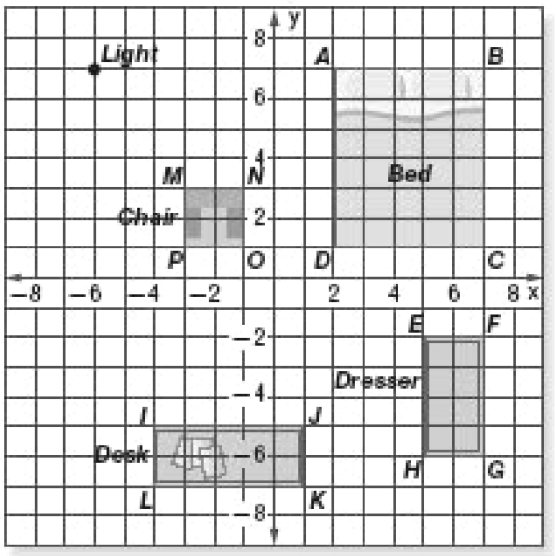
15. 6 units down



17. **VIDEO GAMES** The detective in a popular video game walks through a maze searching for clues. The detective begins her search at the coordinates (1, –4). There is a clue located 6 units left of the origin and 8 units down. The detective moves 2 units up, 3 units left, 4 units down, and 6 units left. State the detective's final coordinates. Will she discover the clue?

The detective starts at (1, –4), the clue is located at (–6, –8). The detective moves up 2 units and 3 units left putting her at (–2, –2). She then moves 4 units down and 6 units left putting her at (–8, –6) which is the location of the clue.

Use the layout of Tamika's bedroom to find the new coordinates of each object after the translation given.



19. Bed: 9 units left, 1 unit down

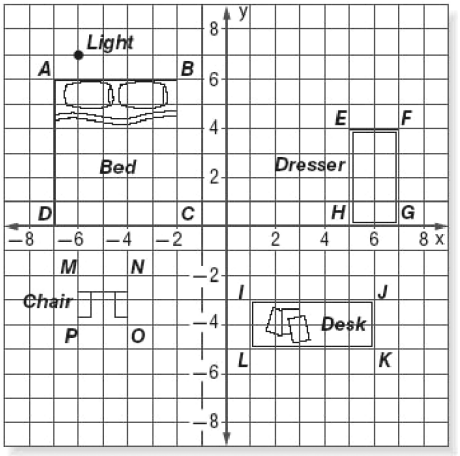
$A(-7, 6)$, $B(-2, 6)$, $C(-2, 0)$, and $D(-7, 0)$

21. Desk: 5 units right, 2 units up

$I(1, -3)$, $J(6, -3)$, $K(6, -5)$, and $L(1, -5)$

Name: School: Grade: Class:

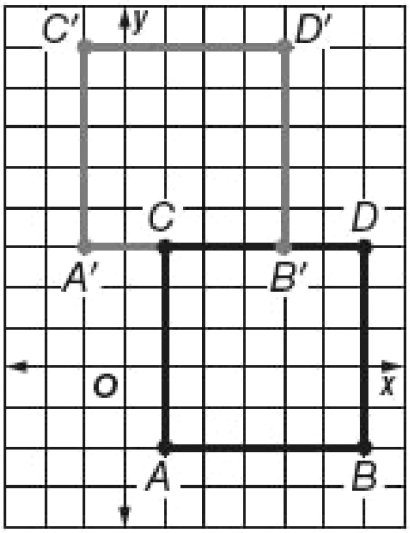
23. After making all the translations in Exercises 19–22, draw the new layout of Tamika's bedroom on a coordinate plane.



GEOMETRY Find the missing coordinates of each figure described. Then graph the figure and its image after each translation.

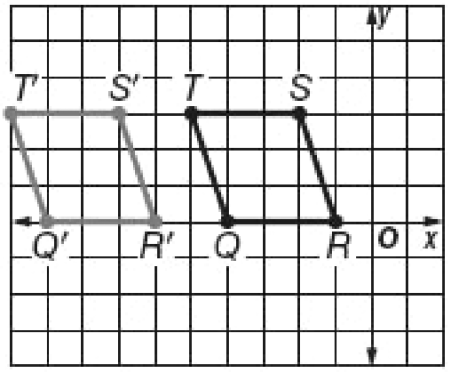
25. Square *ABCD* has vertices *A*(1, –2), *B*(6, –2), *C*(1, 3), and *D*(▇, ▇) and is translated 2 units left and 5 units up.

D(6, 3)



27. Parallelogram *QRST* has vertices *Q*(–4, 0), *R*(–1, 0), *S*(–2, 3), and *T*(▇, ▇) and is translated 5 units left.

T(–5, 3)



Name: School: Grade: Class:

GEOMETRY Refer to the following information.
Right triangle *LMN* has vertices *L*(3, 2), *M*(3, –3), and *N*(▇, ▇), and is translated three units left and one unit down.

29. Without graphing, find the vertical distance between vertices L' and M'. Explain your method.

5 units; Sample answer: The vertical distance between vertices L and M is 5 units, since the difference in the *y*-coordinates is 2 – (–3), or 5. A translation does not change the size or shape of a figure, so the vertical distance between vertices L' and M' will also be 5 units.

CHALLENGE A translation can also be described using an ordered pair. The ordered pair (–4, 3) means a translation of 4 units left and 3 units up. If triangle ABC has vertices at A(–3, 5), B(1, –1), and C(–4, –2), give the coordinates of the vertices of triangle A'B'C' after each translation.

31. (5, 2)

A'(2, 7), *B*'(6, 1), *C*'(1, 0)

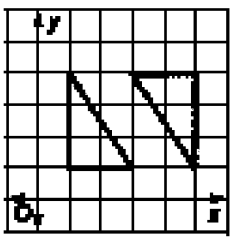
33. (2, –4)

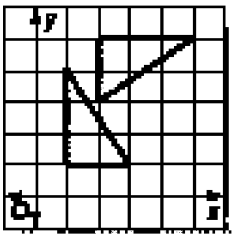
A'(–1, 1), *B*'(3, –5), *C*'(–2, –6)

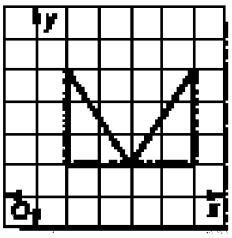
35. **WRITING IN MATH** Describe how you would translate rectangle *QRST* 7 units right and 4 units down.

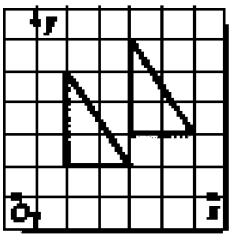
Sample answer: First find the new coordinates of rectangle *Q'R'S'T'* by adding 7 to each *x*-coordinate and subtracting 4 from each *y*-coordinate. Then graph rectangle *QRST* and rectangle *Q'R'S'T'* on the same coordinate plane.

37. Which graph shows a translation of the triangle?

F


H


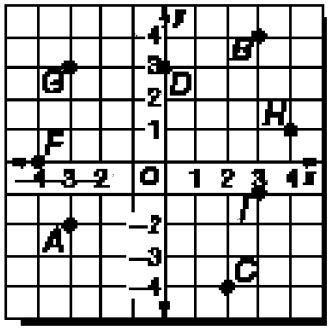
G


J


J

Name: School: Grade: Class:

Use the coordinate plane below. Identify the point for each ordered pair.



39. (–3, 3)

G

41. (2, –4)

C

PREREQUISITE SKILL Determine whether each letter could be folded in half so that one side matches the other. Write *yes* or *no*.

43.

yes

45.

yes