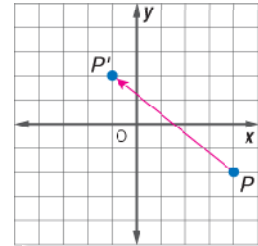**Lesson 8-5**

Example 1

Graph the image of the point *P*(4, –2) under a translation 5 units left and 4 units up.

Solution

Subtract 5 from the x-coordinate
and add 4 to the y-coordinate.

P(4, -2)   *P′*(4 - 5, -2 + 4)   *P′*(-1, 2)

P′ is the translated image of *P*.

Example 2

Graph the image of △*RST* with vertices *R*(−5, 1), *S*(−4, 5), and *T*(−1, 3) under a translation 3 units right and 5 units down.
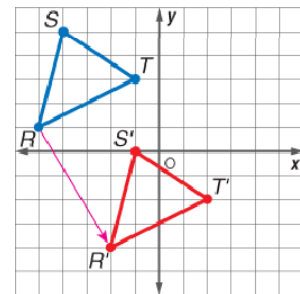
Solution

Add 3 to the *x*-coordinate of each point.
Subtract 5 from the *y*-coordinate of each point.
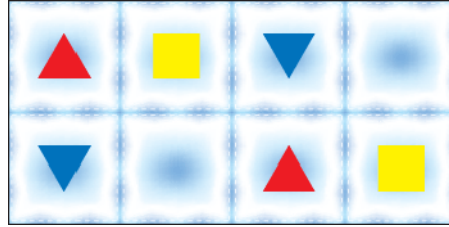
R(-5, 1)   *R′*(-5 + 3, 1 - 5)   *R′*(-2, -4)
s(-4, 5)   *S′*(-4 + 3, 5 - 5)   *S′*(-1,. 0)
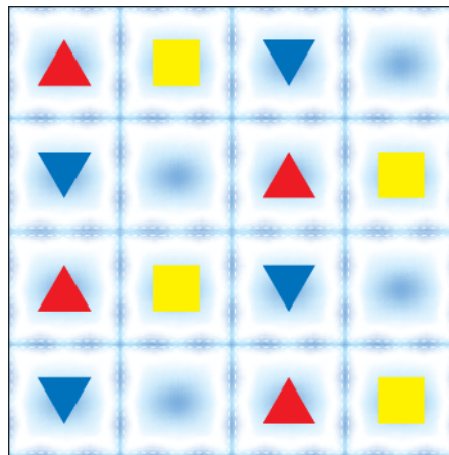*T*(-1, 3)   *T′*(-1 + 3, 3 - 5)   *T′*(2, -2)

Example 3

CRAFTS Celinda is designing a baby quilt that she plans to make for her niece. The first four squares in the first two rows of the quilt will look like this.

Fill in the shapes that will go in the first four squares of the third and fourth rows of the quilt. Explain how translations are involved in the quilt pattern.

Solution

The third row will be identical to the first row, and the fourth row will be identical to the second row.

Start with the first row. Translate two columns to the left and one row down or translate two columns to the right and one row down. Continue this translation to complete the remaining rows of the quilt. After the first two rows, the remaining rows can also be obtained by translating each row two rows down.