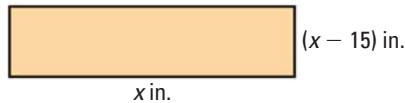


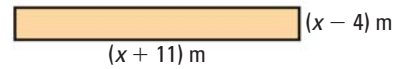
42. **TAKS REASONING** Write an equation of the form  $x^2 + bx + c = 0$  that has the solutions  $-4$  and  $6$ . *Explain* how you found your answer.

**GEOMETRY** Find the dimensions of the rectangle or triangle that has the given area.

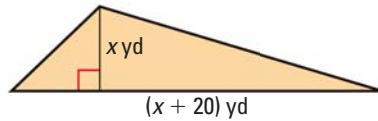
43. Area: 100 square inches



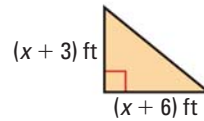
44. Area: 34 square meters



45. Area: 78 square yards



46. Area: 119 square feet



**FACTORING TRINOMIALS** In Exercises 47–55, use the example below to factor the trinomial.

**EXAMPLE** Factor a trinomial in two variables

Factor  $x^2 + 9xy + 14y^2$ .

**Solution**

To factor the trinomial, you must find factors of the form  $x + py$  and  $x + qy$ .

First, consider the signs of the factors needed. In this example,  $b$  is 9, and  $c$  is 14. Because both  $b$  and  $c$  are positive, you must find two positive factors of 14 that have a sum of 9.

Factors of 14	Sum of factors	
14, 1	$14 + 1 = 15$	$\times$
7, 2	$7 + 2 = 9$	$\leftarrow$ Correct sum

The factors 7 and 2 have a sum of 9, so 7 and 2 are the correct values of  $p$  and  $q$ .

$\blacktriangleright x^2 + 9xy + 14y^2 = (x + 7y)(x + 2y)$

47.  $x^2 - 4xy + 4y^2$       48.  $y^2 - 6yz + 5z^2$       49.  $c^2 + 13cd + 36d^2$   
 50.  $r^2 + 15rs + 50s^2$       51.  $a^2 + 2ab - 15b^2$       52.  $x^2 + 8xy - 65y^2$   
 53.  $m^2 - mn - 42n^2$       54.  $u^2 - 3uv - 108v^2$       55.  $g^2 + 4gh - 60h^2$

**CHALLENGE** Find all integer values of  $b$  for which the trinomial has factors of the form  $x + p$  and  $x + q$  where  $p$  and  $q$  are integers.

56.  $x^2 + bx + 15$       57.  $x^2 - bx + 21$       58.  $x^2 + bx - 42$