

## Process Checklist

- ✓ Question 4: Did you reflect on your thinking to decide which strategy you prefer?
- ✓ Questions 5 and 6: Did you select strategies that are appropriate for the expressions?
- ✓ Question 9: Did you connect factoring with the factored form of a quadratic relation from Chapter 3?

1. Determine the value of each symbol.
  - a)  $x^2 - \blacklozenge x - 56 = (x + 7)(x - \blacksquare)$
  - b)  $16x^2 - \blacklozenge = (\blacksquare x - 3)(\blacksquare x + \bullet)$
  - c)  $12x^2 + \bullet x + 5 = (4x + \blacksquare)(\blacklozenge x + 5)$
  - d)  $25x^2 + \bullet x + 49 = (\blacksquare x + \blacklozenge)^2$
2. Identify each trinomial that is modelled below, and state its factors.

a)

$-x$	$-x$	1	1	1
$-x$	$-x$	1	1	1
$x^2$	$x^2$	$-x$	$-x$	$-x$
$x^2$	$x^2$	$-x$	$-x$	$-x$

b)

$2x^2$	$-x$
$8x$	$-4$

3. Factor each expression.
  - a)  $20x^5 - 30x^3$
  - b)  $-8yc^3 + 4y^2c - 6yc$
  - c)  $2a(3b + 5) + 7(3b + 5)$
  - d)  $2st + 6s + 5t + 15$
4. a) Factor  $25x^2 - 30x + 9$  using two different strategies.  
b) Which strategy do you prefer? Explain why.
5. Factor each expression.
  - a)  $x^2 + 4x - 77$
  - b)  $a^2 - 3a - 10$
  - c)  $3x^2 - 12x + 12$
  - d)  $m^3 + 3m^2 - 4m$
6. Factor.
  - a)  $6x^2 - x - 2$
  - b)  $8n^2 + 8n - 6$
  - c)  $9x^2 + 12x + 4$
  - d)  $6ax^2 + 5ax - 4a$
7. A graphic arts company creates posters with areas that are given by the equation  $A = 2x^2 + 11x + 12$ .
  - a) Write expressions for possible dimensions of the posters.
  - b) Write expressions for the dimensions of a poster whose width is doubled and whose length is increased by 2. Write the new area as a simplified polynomial.
  - c) Write expressions for possible dimensions of a poster whose area is given by the expression  $18x^2 + 99x + 108$ .
8. Factor each expression.
  - a)  $225x^2 - 4$
  - b)  $9a^2 - 48a + 64$
  - c)  $x^6 - 4y^2$
  - d)  $(3 + n)^2 - 10(3 + n) + 25$
9. A parabola is defined by the equation  $y = 2x^2 - 11x + 5$ . Explain how you can determine the vertex of the parabola without using graphing technology.

