

You may be asked to determine the correctly factored form of a polynomial.

EXAMPLE 16 Recognizing the correct factored form

16 Which product is equivalent to $m^2 - 5m + 6$?

- (1) $(m + 3)(m - 2)$ (3) $(m + 3)(m + 2)$
 (2) $(m - 3)(m - 2)$ (4) $(m - 3)(m + 2)$

■ **SOLUTION**

Examine the choices.

- (1) and (4) These products will each have a negative constant term.
 (3) This product will have a positive constant term, but the coefficient of the linear term will also be positive.
 (2) By a process of elimination, choice (2) must be the correct factorization. You can check any factorization by multiplying:

$$(m - 3)(m - 2) = m^2 - 2m - 3m + (-3)(-2) = m^2 - 5m + 6 \quad \checkmark$$

The correct choice is (2).

In some cases, factoring completely will involve two types of factorization. In general, you should always begin by looking for a common monomial factor.

EXAMPLES 17 and 18 Factoring in two steps

Factor each expression completely.

17 $5v^2 - 5$

■ **SOLUTION** $5v^2 - 5$
 $5(v^2 - 1)$
 $5(v + 1)(v - 1)$

← The GCF of $5v^2$ and 5 is 5 .
 ← $v^2 - 1$ is a difference of two squares.

18 $6h^3 + 9h^2 - 6h$

■ **SOLUTION** $6h^3 + 9h^2 - 6h$
 $3h(2h^2 + 3h - 2)$
 $3h(2h - 1)(h + 2)$

← The GCF of $6h^3$, $9h^2$, and $6h$ is $3h$.
 ← $2h^2 + 3h - 2$ has two binomial factors.

Practice

Choose the numeral preceding the word or expression that best completes the statement or answers the question.

1 What is the greatest common factor of $24c^2d$, $18c^2d^2$, and $12cd^2$?

- (1) $72c^2d^2$ (3) $6cd$
 (2) $6c^2d$ (4) $2c^2d$

2 Which is a perfect square trinomial?

- (1) $x^2 - 8x + 16x^2$ (3) $x^2 - 8x + 16$
 (2) $x^2 + 8x - 16$ (4) $x^2 - 8x - 16$

3 Which is not a true statement?

- (1) $a^2 + 2ab + b^2 = (a + b)^2$
 (2) $a^2 - 2ab + b^2 = (a - b)^2$
 (3) $a^2 + 2ab - b^2 = (b - a)^2$
 (4) $a^2 - b^2 = (a + b)(a - b)$