6.17 Factoring the Product of a Quadratic Trinomial with a Monomial

• Example 1

Factor

$15x^4 - 38x^3 + 7x^2$

We begin by factoring out x^2, which is a factor common to all terms.

$15x^4 - 38x^3 + 7x^2 = x^2(15x^2 - 38x + 7)$

We now check if the quadratic factor can be factored further. You can verify that

$15x^2 - 38x + 7 = (5x - 1)(3x - 7)$

Thus,

$15x^4 - 38x^3 + 7x^2 = x^2(5x - 1)(3x - 7)$

CHECK YOURSELF 1

Factor.

$6x^3 + 11x^2 - 10x$

CHECK YOURSELF ANSWER

1. $x(2x + 5)(3x - 2)$.

6.17 Exercises

Name

Section Date

ANSWERS

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

Factor each of the following polynomials completely.

1. $20x^2 - 20x - 15$

2. $24x^2 - 18x - 6$

3. $8m^2 + 12m + 4$

4. $14x^2 - 20x + 6$

5. $2x^3 - 2x^2 - 4x$

6. $2y^3 + y^2 - 3y$

7. $2y^4 + 5y^3 + 3y^2$

8. $4z^3 - 18z^2 - 10z$

9. $36a^3 - 66a^2 + 18a$

10. $20n^4 - 22n^3 - 12n^2$