

# 6.23

## Ratio of Quadratic Polynomials: Problem Type 3

### • Example 1

Write each fraction in simplest form.

$$\frac{3x^2 + 15x + 18}{10x^2 - 5x - 50}$$

Begin by factoring 3 from the numerator and 4 from the denominator.

$$\frac{3x^2 + 15x + 18}{10x^2 - 5x - 50} = \frac{3(x^2 + 5x + 6)}{5(2x^2 - x - 10)}$$

Continue by factoring the quadratics in the numerator and denominator.

$$\frac{3x^2 + 15x + 18}{10x^2 - 5x - 50} = \frac{3(x + 2)(x + 3)}{5(2x - 5)(x + 2)} = \frac{3(x + 3)}{5(2x - 5)}$$

### ● ● ● CHECK YOURSELF 1

Write the fraction in simplest form.

$$\frac{6x^2 + 28x - 10}{21x^2 + 14x - 7}$$


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### ● ● ● CHECK YOURSELF ANSWER

1.  $\frac{2(x + 5)}{7(x + 1)}$

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# 6.23 Exercises

Name \_\_\_\_\_

Section \_\_\_\_\_

Date \_\_\_\_\_

## A N S W E R S

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_

10. \_\_\_\_\_

11. \_\_\_\_\_

12. \_\_\_\_\_

Write the following fractions in simplest form.

1.  $\frac{3x^2 + 3x - 60}{2x^2 - 12x + 16}$

2.  $\frac{12x^2 - 28x + 16}{10x^2 - 15x + 5}$

3.  $\frac{7x^2 - 7x - 42}{21x^2 + 39x - 6}$

4.  $\frac{9x^2 + 18x - 27}{10x^2 + 32x + 6}$

5.  $\frac{9x^2 + 45x + 54}{6x^2 + 27x + 27}$

6.  $\frac{12x^2 + 22x + 8}{10x^2 - 5x - 5}$

7.  $\frac{2x^2 + 24x + 70}{4x^2 + 40x + 100}$

8.  $\frac{12x^2 + 33x + 18}{7x^2 - 7x - 42}$

9.  $\frac{16m^2 + 24m - 40}{6m^2 + 33m + 45}$

10.  $\frac{66x^2 - 11x - 22}{12x^2 - 20x + 8}$

11.  $\frac{6x^2 + 22x - 8}{6x^2 + 33x + 36}$

12.  $\frac{12x^2 + 4x - 8}{6x^2 - 16x + 8}$