

## LESSON PRACTICE

# 5A-1

There are four practice pages for lesson 5. Two are on factoring and two are on rational expressions.

Find the factors.

1.  $x^2 + 7x + 12$

2.  $x^2 + 3x + 2$

3.  $x^2 + x - 6$

4.  $x^2 - 11x + 30$

Use the difference of two squares to find the factors.

5.  $x^2 - y^2$

6.  $a^2 - 81$

Factor. These all have coefficients.

7.  $2x^2 + x - 3$

8.  $3x^2 + 17x + 10$

9.  $5x^2 + 14x - 3$

10.  $4x^2 + 21x + 5$

Find the greatest common factor before factoring.

11.  $2x^2 + 12x + 16$

12.  $x^3 + 6x^2 + 9x$

Use repeated factoring to solve.

13.  $A^4 - 81$

14.  $x^4 - 17x^2 + 16$

Use factoring to solve, and then check your answers.

15.  $3x^2 + 10x + 12 = 4$

16.  $x^2 - 49 = 0$

17.  $2x^4 = 72x^2$

18.  $x^4 - 26x^2 + 27 = 2$

LESSON PRACTICE

5B-1

Combine.

$$1. \frac{2}{x-1} + \frac{6}{x+2} + \frac{3}{x^2+x-2} =$$

$$2. \frac{x+2}{x-2} - \frac{x+2}{x+2} =$$

$$3. \frac{3}{a} + \frac{5}{a+1} =$$

$$4. \frac{3x}{x+3} - \frac{2x}{x+2} =$$

$$5. \frac{7}{x+2} + \frac{4}{3-x} - \frac{2x+1}{x^2-x-6} =$$

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

Simplify.

$$7. \frac{\frac{2}{X}}{\frac{X+3}{4X}} =$$

$$= \frac{2 \cdot 4X}{X(X+3)} = \frac{8X}{X(X+3)} = \frac{8}{X+3}$$

$$8. 2 + \frac{1}{2} = \frac{4}{2} + \frac{1}{2} = \frac{5}{2}$$

$$9. \frac{2 - \frac{3}{A}}{4 + \frac{1}{A-1}} =$$

$$= \frac{\frac{2A-3}{A}}{\frac{4(A-1)+1}{A-1}} = \frac{2A-3}{4A-3}$$

$$10. \frac{\frac{X^2+7X+12}{X^2+X-12}}{\frac{X^2+3X+2}{X^2-9}} =$$

$$= \frac{(X+3)(X+4)}{(X-2)(X+4)} \cdot \frac{(X-3)(X+3)}{(X+1)(X+2)} = \frac{(X+3)^2(X-3)}{(X-2)(X+1)(X+2)}$$

$$11. \frac{X - \frac{5}{Y}}{X + \frac{4}{Y}} =$$

$$= \frac{\frac{XY-5}{Y}}{\frac{XY+4}{Y}} = \frac{XY-5}{XY+4}$$

$$12. \frac{\frac{X^2+X-6}{X^2-11X+30}}{\frac{X^2-7X+10}{X^2-10X+24}} =$$

$$= \frac{(X-2)(X+3)}{(X-5)(X-6)} \cdot \frac{(X-2)(X-4)}{(X-2)(X-4)} = \frac{(X-2)(X+3)}{(X-5)(X-6)}$$

SYSTEMATIC REVIEW

Find the factors.

1.  $x^2 + 2x - 24$

2.  $x^2 + 10x + 9$

3.  $x^2 - 7x + 10$

4.  $64 - x^2$

5.  $2x^2 - 17x + 30$

6.  $3x^2 + 8x - 3$

7.  $4x^2 - 19x + 12$

8.  $x^2 - x - 6$

Solve by factoring to find the roots, and then check your answers in the original equation.

9.  $2x^2 - 20x = -36 - 2x$

10.  $9x^2 - 20x = -16 + 4x$

Combine.

11.  $\frac{X-3}{2X} - \frac{X-2}{2Y} =$

12.  $\frac{8X-2}{X^2+5X+6} - \frac{X+2}{X+3} =$

13.  $4 + \frac{\frac{1}{4}}{6 - 1\frac{2}{3}} =$

14.  $\frac{\frac{5X}{2} + 1}{2X - \frac{4}{3X}} =$

Simplify.

15.  $\frac{20\sqrt{15}}{5\sqrt{3}} =$

16.  $\frac{2}{\sqrt{10}} =$

17.  $9\sqrt{40} =$

18.  $\frac{6}{\sqrt{7}} + \frac{9}{\sqrt{5}} =$

Solve using scientific notation.

19.  $\frac{(26,000)(.00004)}{(1,300,000)(200,000,000)} =$

Reduce.

20.  $\frac{X^2+7X+10}{X^2+4X+4} =$

$X \neq -2$