LESSON 11.5

NAME _____ DATE _____

Challenge: Skills and Applications

For use with pages 670–675

In Exercises 1–6, simplify the expression.

1. $\frac{u^2 - 16}{u^2 + 8u + 16} \cdot \frac{u^2 + 4u}{3u - 12}$

2. $\frac{a + 2b}{(a - 2b)^2} \div \frac{a^2 + 4ab + 4b^2}{a^2 - 4b^2}$

3. $\frac{t^2 - 8t + 15}{5t + 15} \cdot \frac{5t^2 - 45}{t^2 - 5t}$

4. $\frac{2p^2 - 2}{p + 2} \div \frac{2p - 2}{(p + 2)^2}$

5. $\frac{c^3 - c^2}{(c - 1)^3} \div \frac{c^2 + c}{c^2 - 1}$

6. $\frac{x^2 + 3x - 10}{x^2 + 7x + 10} \div \frac{x^2 - 4}{(x + 2)^2}$

7. For what values of x is the expression undefined?

$$\frac{x - a}{x - b} \div \frac{x - c}{x - d}$$

In Exercises 8–11, use the following expression.

$$\frac{x^2 - a^2}{(x - a)^2} \div \frac{x^2 - b^2}{(x - b)^2}$$

8. Substitute 4 for a and 5 for b and then simplify the expression to the ratio of two quadratic trinomials.

9. Substitute 3 for a and 7 for b and then simplify the expression to the ratio of two quadratic trinomials.

10. Under what conditions on a and b does the expression simplify to

$$\frac{x^2 - x - ab}{x^2 + x - ab}?$$

11. Simplify the original expression with a and b. Explain the pattern from Exercise 10.

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