Name_____ Date_____

6.5 Practice B

In Exercises 1–3, solve the equation by cross multiplying. Check your solution(s).

1. $\dfrac{3}{x + 2} = \dfrac{5}{x - 2}$

2. $\dfrac{2}{x - 4} = \dfrac{x - 3}{x - 1}$

3. $\dfrac{x - 5}{4} = \dfrac{x^2 - 5}{x + 4}$

4. So far in soccer practice, you have made 10 out of 32 goal attempts. Solve the equation $0.45 = \dfrac{10 + x}{32 + x}$ to find the number x of consecutive goals you need to make to raise your goal average to 0.45.

In Exercises 5 and 6, identify the LCD of the rational expressions in the equation.

5. $\dfrac{6}{x + 3} + \dfrac{x}{x + 2} = \dfrac{4}{5}$

6. $\dfrac{6}{x - 8} - \dfrac{2x}{3x - 2} = \dfrac{9}{4}$

In Exercises 7–12, solve the equation by using the LCD. Check your solution(s).

7. $\dfrac{3}{4x} + \dfrac{1}{8} = \dfrac{7}{4x}$

8. $\dfrac{5}{x - 6} + \dfrac{1}{x} = \dfrac{x - 1}{x - 6}$

9. $\dfrac{x - 4}{x - 5} + 5 = \dfrac{4x}{x}$

10. $\dfrac{16}{x^2 - 4x} - \dfrac{8}{x - 4} = \dfrac{4}{x}$

11. $\dfrac{x + 1}{x + 2} + \dfrac{1}{x} = \dfrac{2x + 1}{x + 2}$

12. $\dfrac{4}{x} - 1 = \dfrac{4}{x + 2}$

13. Describe and correct the error in the first step of solving the equation.

$$\times \qquad \dfrac{3}{x + 2} + 5 = \dfrac{1}{x}$$
$$(x + 2) \bullet \dfrac{3}{x + 2} + (x + 2) \bullet 5 = (x + 2) \bullet \dfrac{1}{x}$$

14. You can kayak around a certain island in 3 hours. Kayaking together, you and your friend can kayak around the island in 1.4 hours. Let t be the time (in hours) your friend would take to kayak around the island when kayaking alone. Write and solve an equation to find how long your friend would take to kayak around the island when kayaking alone.

    $\big(Hint:\ (\text{Work done}) = (\text{Work rate}) \times (\text{Time})\big)$

In Exercises 15 and 16, determine whether the inverse of f is a function. Then find the inverse.

15. $f(x) = \dfrac{3}{2x - 7}$

16. $f(x) = \dfrac{1}{x^3} + 9$