Name _____ Date _____

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

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

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

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

4. So far in baseball practice, you have pitched 47 strikes out of 61 pitches. Solve the equation $\dfrac{80}{100} = \dfrac{47+x}{61+x}$ to find the number x of consecutive strikes you need to pitch to raise your strike percentage to 80%.

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

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

6. $\dfrac{3x}{x+5} - \dfrac{8}{x} = \dfrac{2}{x}$

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

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

8. $\dfrac{5}{2x} + \dfrac{1}{4} = \dfrac{9}{2x}$

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

10. $\dfrac{4}{x-5} + \dfrac{1}{x} = \dfrac{x-1}{x-5}$

11. $\dfrac{8}{x} + 3 = \dfrac{x+8}{x-4}$

12. $\dfrac{12}{x^2-2x} - \dfrac{3}{x-2} = \dfrac{3}{x}$

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

$$\times \qquad \dfrac{4}{x} + \dfrac{1}{2} = 1$$
$$2x \bullet \dfrac{4}{x} + 2x \bullet \dfrac{1}{2} = 1$$

14. You can clean the gutters of your house in 5 hours. Working together, you and your friend can clean the gutters in 3 hours. Let t be the time (in hours) your friend would take to clean the gutters when working alone. Write and solve an equation to find how long your friend would take to clean the gutters when working alone.

$\big($*Hint:* (Work done) $=$ (Work rate) $\times$ (Time)$\big)$

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

15. $f(x) = \dfrac{5}{x-2}$

16. $f(x) = \dfrac{4}{x} - 1$