Name _____ Date _____

<span style="color:red">#1-11 odd</span>

**In Exercises 1–3, find the sum or difference.**

**1.** $\dfrac{x}{25x^2} - \dfrac{5}{25x^2}$

**2.** $\dfrac{2x^2}{x+6} + \dfrac{8x}{x+6}$

**3.** $\dfrac{3x}{x-4} - \dfrac{12}{x-4}$

**In Exercises 4–7, find the least common multiple of the expressions.**

**4.** $36x^2,\ 9x^2 - 18x$

**5.** $x^2 - 100,\ x - 10$

**6.** $25x^2 - 4,\ 3x^2 - 10x - 8$

**7.** $x^2 + 7x - 18,\ x + 9$

**In Exercises 8–11, find the sum or difference.**

**8.** $\dfrac{7}{x-5} + \dfrac{4x}{x+1}$

**9.** $\dfrac{7}{x^2 - 5x - 24} + \dfrac{3}{x-8}$

**10.** $\dfrac{x^2 - 3}{x^2 - 6x - 16} - \dfrac{x+5}{x+2}$

**11.** $\dfrac{x-2}{x-3} + \dfrac{3}{x} + \dfrac{6x}{2x+1}$

**12.** Describe and correct the error in finding the sum.

$$\boxed{\;\times\quad \dfrac{4}{7x} + \dfrac{5}{x^3} = \dfrac{4(x^3)}{7x(x^3)} + \dfrac{5(7x)}{x^3(7x)} = \dfrac{4x^3 + 35x}{7x^4}\;}$$

**In Exercises 13 and 14, tell whether the statement is *always*, *sometimes*, or *never* true. Explain.**

**13.** The LCD of two rational functions is one of the denominators when the other denominator is a factor.

**14.** The LCD of two rational functions will have a degree equal to that of the denominator with the higher degree.

**In Exercises 15–18, rewrite the function $g$ in the form $g(x) = \dfrac{a}{x-h} + k$.**

**Graph the function. Describe the graph of $g$ as a transformation of the graph of $f(x) = \dfrac{a}{x}$.**

**15.** $g(x) = \dfrac{5x+3}{x+4}$

**16.** $g(x) = \dfrac{9x}{x+12}$

**17.** $g(x) = \dfrac{5x-4}{x}$

**18.** $g(x) = \dfrac{8x+13}{x-6}$

## 7.5 Puzzle Time

## What Is Green And Sings?

Write the letter of each answer in the box containing the exercise number.

**Solve the equation by cross multiplying.**

1. $\dfrac{x-5}{15} = \dfrac{4}{5}$

2. $\dfrac{x-6}{3} = \dfrac{-2x-2}{15}$

3. $\dfrac{x+3}{x+1} = \dfrac{15}{x+7}$

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

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

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

**Solve the equation by using the LCD.**

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

8. $\dfrac{2}{5x} + \dfrac{1}{3} = \dfrac{4}{15x}$

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

10. $\dfrac{3}{x-1} + \dfrac{1}{x+1} = \dfrac{10}{x^2-1}$

11. $\dfrac{12}{x^2+4x} + \dfrac{3}{x} = \dfrac{1}{x+4}$

12. $\dfrac{8}{x+2} - \dfrac{2}{x} = \dfrac{x-2}{x^2+2x}$

**Answers**

L. $x = 2$

S. $x = -2, x = 5$

A. $x = \dfrac{15}{2}$

E. $x = 17$

P. $x = 3$

S. $x = \dfrac{2}{7}, x = -1$

E. $x = -12$

I. $x = -4$

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

Y. $x = \dfrac{2}{5}$

L. $x = 4$

V. $x = 3, x = 2$

| 1 | 2 | 3 | 4 | 5 |  | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|----|----|----|
|   |   |   |   |   |   |   |   |   |   |    |    |    |