

11-4

Practice

Form K

Adding and Subtracting Rational Expressions

Add or subtract.

1. $\frac{2}{n} + \frac{2}{n} = \frac{4}{n}$

2. $\frac{8}{7p} + \frac{19}{7p} = \frac{27}{7p}$

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

4. $\frac{1}{2-b} + \frac{b}{b-2} = \frac{-1+b}{b-2}$

5. $\frac{4}{d} - \frac{2d}{2} = \frac{4-d^2}{d}$

6. $\frac{2k}{7} - \frac{7}{5k} = \frac{10k^2-49}{35k}$

Find the LCD of each pair of expressions.

7. $\frac{1}{5}, \frac{2}{g} = 5g$

8. $\frac{2}{3m^2n}, \frac{7}{mn^2} = 3m^2n^2$

9. $\frac{6}{x-3}, \frac{1}{x+4} = (x-3)(x+4)$

10. $\frac{2y}{y^2+1}, \frac{y^2}{3} = 3(y^2+1)$

11. **Writing** Explain how you can find the LCD when the GCF of the denominators is 1.

You can multiply the two denominators by each other.

12. What do you need to do to the numerators when using the LCD to add or subtract the rational expressions? Explain.

You multiply the numerators by the same number that you multiplied the denominator by so that you do not change the value of the expression.

11-4

Practice (continued)

Form K

Adding and Subtracting Rational Expressions

Add, subtract, and/or simplify.

13. $\frac{2}{m} + \frac{5}{n} \frac{2n + 5m}{mn}$

14. $\frac{3}{t + 3} + 5 \frac{18 + 5t}{t + 3}$

15. $1 + \frac{x}{y} \frac{y + x}{y}$

16. $\frac{a}{b} + \frac{2}{c(b - 2)} \frac{ac(b - 2) + 2b}{bc(b - 2)}$

17. $\frac{2.2}{2n} - \frac{8.8}{3n} - \frac{11}{6n}$

18. $\frac{3 + 2}{10 - 7} \frac{5}{3w}$

19. What is the perimeter of a rectangular area rug that is $\frac{3 + p}{3}$ ft long and $\frac{4p - 6}{5}$ ft wide? $\frac{34p - 6}{15}$ ft

20. Jennifer rode her bike to the store at a rate of 15 mi/h. She rode back home at a rate of 10 mi/h. How far is it to the store if the round trip takes 1 hour? **6 mi**21. **Writing** Why would you change a rational expression with a denominator of $x^2 - 6x + 8$ to $(x - 2)(x - 4)$ when adding or subtracting rational expressions?**You change the denominator to make it simpler to find the LCD.**22. **Open-Ended** Write a problem that uses addition of rational expressions in which you need to find an LCD. Simplify the expression.**Answers may vary. Sample:** $\frac{1}{2x} + \frac{3}{5} = \frac{6x + 5}{10x}$