

Worksheet 1.4.1: Addition and Subtraction of Rational Algebraic Expressions

A. Similar or Dissimilar

Write Similar if the given fractions are similar or Dissimilar if they are dissimilar. One point each.

1.  $\frac{1}{4}$  and  $\frac{3}{4}$

4.  $\frac{4}{7}$  and  $\frac{4}{5}$

2.  $\frac{1}{6}$  and  $\frac{1}{5}$

5.  $\frac{6}{5}$  and  $\frac{1}{5}$

3.  $\frac{5}{3}$  and  $\frac{2}{3}$

B. Finding the LCD

Find the least common denominator (LCD) of each pair of rational algebraic expressions. Choose the answer from the box. Write the letter only. One point each.

a.  $(x + 1)(x + 2)$

b.  $(5x + 4)(2x + 3)$

c.  $(7x - 5)(x + 4)$

d.  $4x(x + 1)$

e.  $3(x + 8)(x - 1)$

f.  $(x + 7)(x - 8)$

g.  $3x(x + 4)$

h.  $3(3x - 2)$

i.  $4(x - 1)$

j.  $(x - 2)(x - 2)$

6.  $\frac{6}{x - 1}$  and  $\frac{5x}{4}$

11.  $\frac{2x}{x^2 - 4x + 4}$  and  $\frac{1}{x - 2}$

7.  $\frac{3}{x + 7}$  and  $\frac{4}{x - 8}$

12. 6 and  $\frac{x + 5}{(7x - 5)(x + 4)}$

8.  $\frac{3}{4x^2 + 4x}$  and  $\frac{7}{2}$

13.  $\frac{2}{3x^2 + 12x}$  and  $\frac{8}{2x}$

9.  $\frac{7}{3}$  and  $\frac{8}{12x - 8}$

14.  $\frac{5x + 5}{5x^2 + 35x - 40}$  and  $\frac{7x}{3x}$

10.  $\frac{2x}{5x + 4}$  and  $\frac{6x}{2x + 3}$

15.  $\frac{4}{x + 1}$  and  $\frac{2}{x + 2}$

C. Simplifying Rational Expressions

Perform the indicated operation. Choose the answer from the box. Write the letter only. One point each.

a.  $\frac{2x + 7}{3x - 6}$

b.  $\frac{2x + 6}{(x + 1)(x + 2)}$

c.  $\frac{7x^2 + 52x - 53}{3(x + 8)(x - 1)}$

d.  $-\frac{1}{x^3}$

e.  $\frac{50 + 12x}{3x(x + 4)}$

f.  $-\frac{1}{2x^2 + 13x + 20}$

g.  $\frac{42x^2 + 137x - 125}{(7x - 5)(x + 4)}$

h.  $\frac{7x - 4y}{8y}$

i.  $\frac{x + 2}{(x - 2)^2}$

j.  $\frac{6 + 5x}{x^2 + 3x + 2}$

$$16. \frac{x-y}{8y} + \frac{6x-3y}{8y}$$

$$17. \frac{x-3y}{6x^3y} - \frac{x+3y}{6x^3y}$$

$$18. \frac{5}{x^2+3x+2} + \frac{5x+1}{x^2+3x+2}$$

$$19. \frac{x+2}{2x^2+13x+20} - \frac{x+3}{2x^2+13x+20}$$

$$20. \frac{x+6}{3x-6} + \frac{x+1}{3x-6}$$

$$21. \frac{2x}{x^2-4x+4} - \frac{1}{x-2}$$

$$22. 6 - \frac{x+5}{(7x-5)(x+4)}$$

$$23. \frac{2}{3x^2+12x} + \frac{8}{2x}$$

$$24. \frac{5x+5}{5x^2+35x-40} + \frac{7x}{3x}$$

$$25. \frac{4}{x+1} - \frac{2}{x+2}$$