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 $\frac{3}{4}$
2. $\frac{1}{6}$ and $\frac{1}{5}$
3. $\frac{5}{3}$ and $\frac{2}{3}$
4. $\frac{4}{7}$ and $\frac{4}{5}$
5. $\frac{6}{5}$ and $\frac{1}{5}$

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. $4v(v+1)$

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

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 $\frac{5x}{4}$
7. $\frac{3}{x+7}$ and $\frac{4}{x-8}$
8. $\frac{3}{4v^2+4v}$ and $\frac{7}{2}$
9. $\frac{7}{3}$ and $\frac{8}{12x-8}$
10. $\frac{2x}{5x+4}$ and $\frac{6x}{2x+3}$
11. $\frac{2x}{x^2-4x+4}$ and $\frac{1}{x-2}$
12. 6 and $\frac{x+5}{(7x-5)(x+4)}$
13. $\frac{2}{3x^2+12x}$ and $\frac{8}{2x}$
14. $\frac{5n+5}{5n^2+35n-40}$ and $\frac{7n}{3n}$
15. $\frac{4}{x+1}$ and $\frac{2}{x+2}$

C. Simplifying Rational Expressions

Simplify each rational algebraic expression. 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. $\dfrac{x-y}{8y}+\dfrac{6x-3y}{8y}$

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

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

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

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

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

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

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

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

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