










Name : \_\_\_\_\_ Score : \_\_\_\_\_




Teacher : \_\_\_\_\_ Date : \_\_\_\_\_


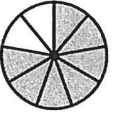

### Visually Adding Simple Fractions

1)  +  =   
 $\frac{2}{10} + \frac{6}{10} =$  \_\_\_\_\_

2)  +  =   
 $\frac{4}{12} + \frac{5}{12} =$  \_\_\_\_\_

3)  +  =   
 $\frac{1}{11} + \frac{1}{11} =$  \_\_\_\_\_

4)  +  =   
 $\frac{2}{11} + \frac{2}{11} =$  \_\_\_\_\_

5)  +  =   
 $\frac{1}{9} + \frac{7}{9} =$  \_\_\_\_\_



## Adding + Subtracting Rational Expressions

**Simplify each expression.**

1)  $\frac{u + 5v}{8v^2u^2} - \frac{u - 6v}{8v^2u^2}$

2)  $\frac{5n}{30m} + \frac{2m + 4n}{30m}$

3)  $\frac{a + 2b}{6a^3} - \frac{5a + 4b}{6a^3}$

4)  $\frac{x + y}{18xy} - \frac{6x + y}{18xy}$

5)  $\frac{4a - 5}{6a^2 + 30a} + \frac{a - 1}{6a^2 + 30a}$

6)  $\frac{5x - 4}{9x^3 + 27x^2} - \frac{x + 6}{9x^3 + 27x^2}$

7)  $\frac{b - 3}{12b + 18} + \frac{4b}{12b + 18}$

8)  $\frac{n - 4}{n^2 - n - 20} + \frac{n + 1}{n^2 - n - 20}$

9)  $\frac{7x}{2x} - \frac{x - 2}{20x + 16}$

10)  $\frac{8}{7v - 6} + \frac{4}{3v^2}$

$$11) \frac{7v}{8} - \frac{8v-4}{5v-2}$$

$$12) \frac{4}{n+7} - \frac{7}{n-2}$$

$$13) \frac{7}{3n^2+24n} - \frac{7}{2n}$$

$$14) \frac{6}{v-2} - \frac{7}{2v+7}$$

$$15) \frac{6x}{3} + \frac{7}{15x+3}$$

$$16) \frac{5v}{v-3} + \frac{5}{v+6}$$

$$17) \frac{4x}{x^2+4x-5} - \frac{5}{4}$$

$$18) \frac{2}{x+3} - \frac{6x}{2x+1}$$

$$19) \frac{4x}{x+3} - \frac{4x}{x+6}$$

$$20) \frac{2x}{3x+3} - \frac{2}{x+5}$$

$$21) \frac{6}{x-2} + \frac{6}{x+1}$$

$$22) \frac{v-2}{3v^4-15v^3-18v^2} + 3v$$

## Adding/Subtracting Rational Expressions

**Simplify each expression.**

1)  $\frac{u-v}{8v} + \frac{6u-3v}{8v}$

2)  $\frac{m-3n}{6m^3n} - \frac{m+3n}{6m^3n}$

3)  $\frac{5}{a^2+3a+2} + \frac{5a+1}{a^2+3a+2}$

4)  $\frac{5}{10n^2+16n+6} + \frac{n-6}{10n^2+16n+6}$

5)  $\frac{r+6}{3r-6} + \frac{r+1}{3r-6}$

6)  $\frac{x+2}{2x^2+13x+20} - \frac{x+3}{2x^2+13x+20}$

7)  $\frac{6}{x-1} - \frac{5x}{4}$

8)  $6 - \frac{x+5}{(7x-5)(x+4)}$

9)  $\frac{3}{x+7} + \frac{4}{x-8}$

10)  $\frac{3}{4v^2+4v} - \frac{7}{2}$

11)  $\frac{7}{3} - \frac{8}{12x-8}$

12)  $\frac{5}{n+5} + \frac{4n}{2n+6}$

13)  $\frac{2x}{5x+4} + \frac{6x}{2x+3}$

14)  $\frac{2}{3x^2+12x} + \frac{8}{2x}$

15)  $\frac{7n}{n+1} + \frac{8}{n-7}$

16)  $\frac{2}{n+8} + \frac{4}{n+1}$

17)  $\frac{3}{8} - \frac{3}{3x+4}$

18)  $\frac{3}{b-8} + \frac{7}{b+3}$

19)  $\frac{3}{x+6} + \frac{7}{x-2}$

20)  $\frac{4}{x+1} - \frac{2}{x+2}$

21)  $\frac{5n+5}{5n^2+35n-40} + \frac{7n}{3n}$

22)  $\frac{3}{n-5} + \frac{6}{3n-8}$

23)  $\frac{\frac{25}{4}}{\frac{1}{5} - \frac{4}{25}}$

24)  $\frac{8}{\frac{4}{9} + \frac{16}{9}}$

25)  $\frac{\frac{a}{25} - \frac{a}{5}}{a}$

26)  $\frac{\frac{5}{4}}{\frac{5}{m} - \frac{4}{m}}$

**Critical thinking questions:**

27) Simplify:  $\frac{a}{b} + \frac{c}{d}$

28) Split into a sum of two rational expressions with unlike denominators:

$$\frac{2x+3}{x^2+3x+2}$$

## ADDING & SUBTRACTING RATIONAL EXPRESSIONS PRACTICE

1.  $\frac{x-4}{3} + \frac{5x}{3}$

2.  $\frac{2x+5}{7} - \frac{x}{7}$

3.  $\frac{8}{x} + \frac{x+9}{x}$

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

5.  $\frac{3x-6}{24x} + \frac{3x+6}{24x}$

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

7.  $\frac{2x+3}{x+4} - \frac{x-7}{x+4}$

8.  $\frac{8}{3(x+8)} + \frac{4}{3(x+8)}$

9.  $\frac{3}{2(x-9)} + \frac{9}{2(x-9)}$

10.  $\frac{7}{3(x-1)} + \frac{5}{3(x-1)}$

11.  $\frac{4x+7}{x+5} - \frac{x-6}{x+5}$

12.  $\frac{-2x+1}{x^2-4} - \frac{-3x-1}{x^2-4}$

13.  $\frac{5x+1}{x^2-64} - \frac{4x-7}{x^2-64}$

14.  $\frac{2x^2+7x-3}{x^2+4x-12} - \frac{2x^2+6x-1}{x^2+4x-12}$

15.  $\frac{3x-4}{x^2-5x+4} + \frac{3-2x}{x^2-5x+4}$

16.  $\frac{5x-4}{x^2-6x-7} + \frac{5-4x}{x^2-6x-7}$

17.  $\frac{3x-8}{x^2-9} - \frac{2x-5}{x^2-9}$

18.  $\frac{4x-7}{x^2-25} - \frac{3x-2}{x^2-25}$

19.  $\frac{2}{3x} + \frac{4}{x}$

20.  $\frac{6}{x} + \frac{7}{5x^2}$

21.  $\frac{3}{x} + \frac{6}{7x^2}$

22.  $\frac{4}{x} + \frac{7}{6x^2}$

23.  $\frac{6}{5x^3y} - \frac{1}{2x^2y^3}$

24.  $\frac{5}{xy} + \frac{7}{2x^2}$

25.  $2x + \frac{x}{y}$

26.  $\frac{5x-3}{4x} - \frac{1}{6x}$

27.  $\frac{7}{3x} - \frac{4}{5x^2}$

28.  $\frac{5}{x} + 8$

29.  $7 - \frac{4}{x-9}$

30.  $\frac{x-1}{x-2} - \frac{x^2+4x-4}{x^2+4x-12}$

31.  $\frac{x+2}{x-6} - \frac{x^2+5x+14}{x^2-2x-24}$

32.  $\frac{x+2}{x-7} - \frac{x^2+4x+13}{x^2-4x-21}$

33.  $\frac{x-4}{x^2+5x+6} + \frac{x-1}{x^2-4}$

34.  $\frac{x-4}{x^2+4x+3} - \frac{x-1}{x^2-9}$

35.  $\frac{x-4}{x^2+3x+2} + \frac{x+3}{x^2-4}$

36.  $-\frac{x-2}{x^2-2x-8} - \frac{x-1}{x^2-4}$

37.  $\frac{x+5}{x^2+3x-4} + \frac{x+2}{x^2-1}$

38.  $\frac{x+1}{x^2+6x+9} + \frac{x-4}{x^2-9}$

39.  $\frac{3x-1}{x^2+2x-3} - \frac{x+4}{x^2-9}$

40.  $\frac{3x-2}{x^2+2x-24} - \frac{x-3}{x^2-16}$

41.  $\frac{2}{x^2-5x+4} + \frac{-2}{x^2-4}$

42.  $\frac{3}{x^2-7x+6} + \frac{-3}{x^2-9}$

43.  $3 + \frac{x}{x+2} - \frac{2}{x^2-4}$

44.  $2 + \frac{x}{x-3} - \frac{3}{x^2-9}$

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

46.  $\frac{2}{x+3} - \frac{x}{x-1} + \frac{x^2+2}{x^2+2x-3}$

47.  $\frac{4x}{x^2-1} + \frac{3x}{1-x} - \frac{4}{x-1}$

48.  $\frac{5x}{1-2x} - \frac{2x}{2x+1} + \frac{3}{4x^2-1}$

49.  $\frac{1}{x^2+5x+6} - \frac{2}{x^2+3x+2} + \frac{1}{x^2-3x-4}$

50.  $\frac{2}{x^2-5x+6} - \frac{4}{x^2-2x-3} + \frac{2}{x^2+4x+3}$