

Name: Key

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

## Section 12.6 Homework

1.  $\frac{2}{x} + \frac{5}{x} = \frac{7}{x}$

2.  $\frac{5}{2x} + \frac{7}{2x} = \frac{12}{2x} = \frac{6}{x}$

3.  $\frac{3}{x} + \frac{x+1}{x} = \frac{x+4}{x}$

4.  $\frac{3}{x^2-9} + \frac{x+6}{x^2-9} = \frac{-x-3}{(x+3)(x-3)} = \frac{-1(x+3)}{(x+3)(x-3)} = \frac{-1}{x-3}$

5.  $\frac{5}{x+1} + \frac{4x-1}{x+1} = \frac{4x+4}{x+1} = \frac{4(x+1)}{x+1} = 4$

6.  $\frac{5x+6}{2x+3} + \frac{x-12}{2x+3} = \frac{6x-6}{2x+3}$

7.  $\frac{5x+3}{x^2-4} + \frac{-2x-9}{x^2-4} = \frac{3x-6}{(x+2)(x-2)} = \frac{3(x-2)}{(x+2)(x-2)} = \frac{3}{x+2}$

8.  $\frac{x+15}{x-2} + \frac{-10}{x-2} = \frac{x+5}{x-2}$

9.  $\frac{3x+8}{x^2-4x-5} + \frac{2x-3}{x^2-4x-5} = \frac{5x+5}{(x-5)(x+1)} = \frac{5(x+1)}{(x-5)(x+1)} = \frac{5}{x-5}$

10.  $\frac{x^2+2}{4x^2-4x-3} + \frac{-x^2+2x+1}{4x^2-4x-3} = \frac{2x+1}{(2x+1)(2x-3)} = \frac{1}{2x-3}$

11.  $\frac{3x^2+x}{x^3-8} + \frac{4}{x^3-8} + \frac{-2x^2+x}{x^3-8} = \frac{x^2+2x+4}{x^3-8}$

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

13.  $\frac{18x^2-7x+2}{(8x^3+4x^2)(-18x-9)} + \frac{-3x^2+25x+4}{8x^3+4x^2-18x-9} + \frac{5x^2-3}{8x^3+4x^2-18x-9} = \frac{20x^2-32x+3}{(20x^2-30x+2-2x+3)} = \frac{10x-1}{(2x+3)(2x-3)(2x+1)}$

4x^2(2x+1) - 9(2x+1)  
(4x^2-9)(2x+1)  
(2x+3)(2x-3)(2x+1)

10x(2x-3) + -1(2x-3)

(10x-1)(2x-3)

(2x+3)(2x-3)(2x+1)

14.  $\frac{2x^2+3x}{x^3+2x^2-16x-32} + \frac{5x^2-13}{x^3+2x^2-16x-32} + \frac{-4x^2+9x+11}{(x^3+2x^2)(-16x-32)}$

3x^2-6x-24  
3(x^2-2x-8)  
3(x-4)(x+2)

x^2(x+2) - 16(x+2)  
(x^2-16)(x+2)  
(x+4)(x-4)(x+2)

=  $\frac{3(x-4)(x+2)}{(x+4)(x-4)(x+2)}$

=  $\frac{3}{x+4}$