

Activity 1.4.2: Addition and Substraction of Rational Algebraic Expressions

Total points = 44

Answers

1.  $\frac{6}{3a-9} - \frac{3}{3a-9}$  ✓  
 $= \frac{6-3}{3a-9}$  ✓  
 $= \frac{3}{3a-9}$  ✓  
 $= \frac{3}{3(a-3)}$  ✓  
 $= \frac{1}{a-3}$  ✓

2.  $\frac{x^2-3x-7}{x^2-9} + \frac{x^2-2x+4}{x^2-9}$  ✓  
 $= \frac{x^2-3x-7+x^2-2x+4}{x^2-9}$  ✓  
 $= \frac{2x^2-5x-3}{x^2-9}$  ✓  
 $= \frac{(x-3)(2x+1)}{(x-3)(x+3)}$  ✓  
 $= \frac{2x+1}{x+3}$  ✓  
 $= \frac{7}{x+3}$  ✓

3.  $\frac{3x-6}{7-4} - \frac{4}{3x-6}$  ✓  
 $= \frac{3x-6}{3} - \frac{4}{3x-6}$  ✓  
 $= \frac{3x-6}{3} - \frac{4}{3(x-2)}$  ✓  
 $= \frac{1}{x-2}$  ✓

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

5.  $\frac{x-2}{x-4} - \frac{2}{x-2}$  ✓  
 $= \frac{x-4}{x-4} - \frac{2}{x-2}$  ✓  
 $= \frac{x-4}{x-4} - \frac{2}{x-2}$  ✓  
 $= 1$  ✓

6.  $\frac{a}{a-b} - \frac{b}{a+b}$  ✓  
 $= \frac{a(a+b)-b(a-b)}{(a-b)(a+b)}$  ✓  
 $= \frac{a^2+ab-ab+b^2}{(a-b)(a+b)}$  ✓  
 $= \frac{a^2+b^2}{(a-b)(a+b)}$  ✓  
 $= \frac{3}{(a-b)(a+b)}$  ✓

7.  $\frac{2x+1}{3(3x-2)} + \frac{3x-2}{5(2x+1)}$  ✓  
 $= \frac{3(3x-2)+5(2x+1)}{(2x+1)(3x-2)}$  ✓  
 $= \frac{9x-6+10x+5}{(2x+1)(3x-2)}$  ✓  
 $= \frac{19x-1}{(2x+1)(3x-2)}$  ✓  
 $= \frac{(2x+1)(3x-2)}{(2x+1)(3x-2)}$  ✓

8.  $\frac{3a+12}{2a-8} + \frac{a+4}{a-4}$  ✓  
 $= \frac{3a+12+2(a+4)}{2(a-4)}$  ✓  
 $= \frac{3a+12+2a+8}{2(a-4)}$  ✓  
 $= \frac{5a+20}{2(a-4)}$  ✓  
 $= \frac{5(a+4)}{2(a-4)}$  ✓  
 $= \frac{5(a+4)}{2(a-4)}$  ✓

9.  $\frac{y+1}{y} + \frac{y-1}{y+1}$  ✓  
 $= \frac{(y+1)(y+1)+y(y-1)}{y(y+1)}$  ✓  
 $= \frac{y^2+2y+1+y^2-y}{y(y+1)}$  ✓  
 $= \frac{2y^2+y+1}{y(y+1)}$  ✓  
 $= \frac{2x}{y(y+1)}$  ✓

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

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3.  $\frac{3x-6}{7-4} - \frac{4}{3x-6}$  ✓  
 $= \frac{3x-6}{3} - \frac{4}{3x-6}$  ✓  
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 $= \frac{1}{x-2}$  ✓

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

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 $= \frac{x-4}{x-4} - \frac{2}{x-2}$  ✓  
 $= \frac{x-4}{x-4} - \frac{2}{x-2}$  ✓  
 $= 1$  ✓

6.  $\frac{a}{a-b} - \frac{b}{a+b}$  ✓  
 $= \frac{a(a+b)-b(a-b)}{(a-b)(a+b)}$  ✓  
 $= \frac{a^2+ab-ab+b^2}{(a-b)(a+b)}$  ✓  
 $= \frac{a^2+b^2}{(a-b)(a+b)}$  ✓  
 $= \frac{(a-b)(a+b)}{3} - \frac{b}{5}$  ✓

7.  $\frac{2x+1}{3(3x-2)} + \frac{3x-2}{5(2x+1)}$  ✓  
 $= \frac{(2x+1)(3x-2)}{(2x+1)(3x-2)}$  ✓  
 $= \frac{9x-6+10x+5}{(2x+1)(3x-2)}$  ✓  
 $= \frac{19x-1}{(2x+1)(3x-2)}$  ✓  
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 $= \frac{y^2+2y+1+y^2-y}{y(y+1)}$  ✓  
 $= \frac{2y^2+y+1}{y(y+1)}$  ✓  
 $= \frac{2x}{y(y+1)}$  ✓

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 $= \frac{(x-2)(x-2)}{2x-x-2}$  ✓  
 $= \frac{2x-x-2}{(x-2)(x-2)}$  ✓  
 $= \frac{x+2}{(x-2)^2}$  ✓