480/81
Days 13
Notes

7.8 NOTES – SUMS AND DIFFERENCES OF RATIONAL EXPRESSIONS

OBJECTIVES:

1) Determine the least common multiple (LCM) of polynomials
2) Add and subtract rational expressions

WARM–

Evaluate without the use of a calculator: $\frac{3}{2}+\frac{1}{7}$ $\frac{21}{14}+\frac{2}{14}=\boxed{\frac{23}{14}}$ Find the LCM: 3, 5, 9 $\boxed{45}$

LEAST COMMON MULTIPLE:

a) $15x^2,\ 24x$ $\boxed{120x^2}$

b) $3x^2y^2,\ 5xy^3, 2xy$ $\boxed{30x^2y^3}$

c) $z+1,\ z-1$ z^2-1 or $\boxed{(z-1)(z+1)}$

d) $n^2-7n+12,\ n^2-2n-8$ $(n-4)(n-3), (n-4)(n+2)$ $\boxed{(n-4)(n-3)(n+2)}$

ADDING AND SUBTRACTING RATIONAL EXPRESSIONS

1) $\frac{x}{4}+\frac{5x}{4}$ $=\frac{6x}{4}=\boxed{\frac{3x}{2}}$

2) $\frac{x+1}{3y^2}-\frac{x+1}{-3y^2}$

$\frac{x+1}{3y^2}+\frac{x+1}{3y^2}=\boxed{\frac{2(x+1)}{3y^2}}$

3) $\frac{3}{5x^2}+\frac{7}{10x}$

$\frac{6}{10x^2}+\frac{7x}{10x^2}$

$\boxed{\frac{7x+6}{10x^2}}$

4) $\frac{7x}{15y^2}-\frac{y}{18xy}$

$\frac{42x^2}{90xy^2}-\frac{5y^2}{90xy^2}=\boxed{\frac{42x^2-5y^2}{90xy^2}}$

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

$\frac{3}{2(a+2)} + \frac{4}{a(a+2)}$

$\frac{3a}{2a(a+2)} + \frac{4(2)}{2a(a+2)}$

$\boxed{\frac{3a+8}{2a(a+2)}}$

6) $\frac{2x-6}{x-1} - \frac{4}{1-x}$

$\frac{2x-6}{x-1} + \frac{4}{x-1}$

$\frac{2x-2}{x-1}$

$\frac{2(x-1)}{(x-1)} = \boxed{2}$

7) $\frac{3m-26}{m-6} + \frac{8}{6-m}$

$\frac{3m-26}{m-6} - \frac{8}{m-6}$

$\boxed{\frac{3m-34}{m-6}}$

8) $\frac{y+3}{y-2} - \frac{4y-13}{y^2-5y+6}$

$\frac{(y-3)}{(y-3)} \cdot \frac{y+3}{y-2} - \frac{4y-13}{(y-3)(y-2)}$

$\frac{y^2-9}{(y-2)(y-3)} - \frac{4y-13}{(y-3)(y-2)}$

$\frac{y^2-9-(4y-13)}{(y-3)(y-2)} = \frac{y^2-4y+4}{(y-3)(y-2)} = \frac{(y-2)^2}{(y-2)(y+3)}$

$= \boxed{\frac{y-2}{y+3}}$

9) $\frac{2}{x+1} + \frac{2}{x-1} + \frac{1}{x^2-1}$

$\frac{(x-1)}{(x-1)}\frac{2}{x+1} + \frac{2}{(x-1)} \cdot \frac{(x+1)}{(x+1)} + \frac{1}{x^2-1}$ $(x+1)(x-1)$

$\frac{2(x-1)}{(x-1)(x+1)} + \frac{2(x+1)}{(x-1)(x+1)} + \frac{1}{x^2-1}$

$\frac{2x-2+2x+2+1}{(x+1)(x-1)} = \boxed{\frac{4x+1}{(x+1)(x-1)}}$

10) $\frac{\frac{1}{x}+\frac{1}{y}}{\frac{1}{xy}} \cdot \frac{xy}{xy}$

$\frac{\frac{xy}{x}+\frac{xy}{y}}{\frac{xy}{xy}} = \frac{y+x}{1} = \boxed{x+y}$