

Find this sum:

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

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

$$\frac{2x-6 + 4x-8}{(x+2)(x-3)}$$

$$\frac{6x-14}{(x+2)(x-3)}$$

Find this sum:

$$\frac{2}{2x^2+6x} + \frac{9x}{4x^3-20x^2} + \frac{4}{x^2-2x-15}$$

$$\frac{2x \cdot (x-5)}{2x(x+3)(x-5)} + \frac{9x \cdot (x+3)}{4x^2(x-5)(x+3)} + \frac{4 \cdot 4x^2}{(x-5)(x+3) \cdot 4x^2}$$

$$\frac{29x^2 + 7x}{4x^2(x+3)(x-5)}$$

Find this difference:

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

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

$$\frac{-x-10}{2x(x+2)}$$

Find this difference:

$$\frac{2x}{x^2-8x+16} - \frac{x}{x^2-x-12}$$

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

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

Find this sum:

$$\frac{9}{x^2 + 12x + 36} + \frac{5}{x^2 - 2x - 8}$$

$$\frac{9}{(x+6)(x+6)} + \frac{5}{(x-4)(x+2)}$$

$$\frac{9(x-4)(x+2) + 5(x+6)(x+6)}{(x+6)(x+6)(x-4)(x+2)}$$

$$\frac{9x^2 - 18x - 72 + 5x^2 + 60x + 180}{(x^2 + 12x + 36)(x^2 - 2x - 8)}$$

$$\frac{14x^2 + 42x + 108}{(x^2 + 12x + 36)(x^2 - 2x - 8)}$$

You can now finish Hwk #41

Sec 9-5

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Problems 12, 14, 15, 21, 34, 37, 40

Complex Fractions: (also known as Compound Fractions)
Fractions whose numerators and/or denominators also have fractions.

Simplify:

$$\frac{\frac{8}{15}}{\frac{24}{35}} \cdot \frac{105}{105} = \frac{56}{72}$$

$$= \frac{7}{9}$$

Multiply the top and bottom of the Complex fraction by the LCM of both denominators.

$$\frac{\frac{8}{15}}{\frac{24}{35}} \cdot \frac{7}{7} = \frac{56}{105}$$

$$\frac{\frac{8}{15}}{\frac{24}{35}} \cdot \frac{3}{3} = \frac{72}{105}$$

$$= \frac{56}{72}$$

$$= \frac{7}{9}$$

Make both denominators of the Complex fraction the same then cancel them