

Bellwork Alg 2A Friday, June 2, 2017

Simplify each. No need to state restrictions on the variables.

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$$\frac{3}{x^3 + 5x^2 + 6x} + \frac{7}{4x^3 - 36x} - \frac{5}{2x^4 - 2x^3 - 12x^2}$$

2.

$$\frac{\frac{4}{3x^3 + 9x^2 - 12x}}{\frac{5}{4x^3 - 20x^2 + 16x} - \frac{2}{2x^4 - 32x^2}}$$

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ALG 2A BELLWORK 6-2-17

Answers

$$\begin{aligned}
 & \textcircled{1} \quad \frac{3}{x^3 + 5x^2 + 6x} + \frac{7}{4x^3 - 36x} - \frac{5}{2x^4 - 2x^3 - 12x^2} \\
 & \quad \quad \quad \hookrightarrow x(x^2 + 5x + 6) \quad \quad \quad \hookrightarrow 4x(x^2 - 9) \quad \quad \quad \hookrightarrow 2x^2(x^2 - x - 6) \\
 & = \frac{\overbrace{12x(x-3)}^{12x(x-3)}}{\cancel{4x(x-3)} x(x+3)(x+2)} + \frac{\overbrace{+7x(x+2)}^{+7x(x+2)}}{4x(x+3)(x-3)} \cdot \frac{\cancel{x(x+2)}}{\cancel{x(x+2)}} - \frac{\overbrace{-10(x+3)}^{-10(x+3)}}{2x^2(x-3)(x+2)} \cdot \frac{\cancel{2(x+3)}}{\cancel{2(x+3)}} \\
 & = \frac{12x^2 - 36x + 7x^2 + 14x - 10x - 30}{4x^2(x+2)(x+3)(x-3)} = \boxed{\frac{19x^2 - 32x - 30}{4x^2(x+2)(x+3)}}
 \end{aligned}$$

$$\begin{aligned}
 & \textcircled{2} \quad \frac{4}{3x^3 + 9x^2 - 12x} \rightarrow 3x(x^2 + 3x - 4) \\
 & \quad \quad \quad \frac{5}{4x^3 - 20x^2 + 16x} - \frac{2}{2x^4 - 32x^2} \\
 & \quad \quad \quad \hookrightarrow 4x(x^2 - 5x + 4) \quad \quad \quad \hookrightarrow 2x^2(x^2 - 16) \\
 & = \frac{4}{3x(x+4)(x-1)} \cdot \frac{12x^2(x-1)(x+4)(x-4)}{12x^2(x-1)(x+4)(x-4)} \\
 & \quad \quad \quad \frac{5}{4x(x-4)(x-1)} - \frac{2}{2x^2(x+4)(x-4)} \\
 & = \frac{\overbrace{16x(x-4)}^{16x(x-4)}}{4(4)(x-4)} = \frac{16x^2 - 64x}{15x^2 + 60x - 12x + 12} = \boxed{\frac{16x^2 - 64x}{15x^2 + 48x + 12}} \\
 & \quad \quad \quad \frac{5(3x)(x+4)}{15x(x+4)} - \frac{2(6)(x-1)}{-12(x-1)}
 \end{aligned}$$