

Bellwork Alg 2A Thursday, May 25, 2017

Simplify each. State restrictions on the variables.

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2. $\frac{6x^5 - 78x^3 + 216x}{4x^4 + 20x^3 + 24x^2}$

3. $\frac{16 - x^2}{x^2 - 2x - 8}$

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$$(1) \frac{24a^7b^2}{18a^{12}b^8} = \boxed{\frac{4}{3a^5b^6} \quad \begin{array}{l} a \neq 0 \\ b \neq 0 \end{array}}$$

$$\begin{aligned} (2) \frac{6x^5 - 78x^3 + 216x}{4x^4 + 20x^3 + 24x^2} &= \frac{6x(x^4 - 13x^2 + 36)}{4x^2(x^2 + 5x + 6)} = \frac{6x(x^2 - 4)(x^2 - 9)}{4x^2(x+3)(x+2)} \\ &= \frac{6x(x+2)(x-2)(x+3)(x-3)}{4x^2(x+3)(x+2)} \\ &= \boxed{\frac{3(x-2)(x-3)}{2x} \quad x \neq 0, -2, -3} \end{aligned}$$

$$\begin{aligned} (3) \frac{16 - x^2}{x^2 - 2x - 8} &= \frac{-1(x^2 - 16)}{x^2 - 2x - 8} = \frac{-1(x+4)(x-4)}{(x-4)(x+2)} \\ &= \boxed{\frac{-1(x+4)}{x+2} \quad x \neq -2, 4} \end{aligned}$$