

Bellwork Alg 2A Tuesday, May 30, 2017

Simplify each product or quotient. State restrictions on the variable.

1. $\frac{2x^3 - 8x^2}{x^2 - 8x + 16} \div \frac{10x^4 - 30x^3}{x^2 - 9x + 20}$

2. $\frac{x^2 - 4}{x^2 + 8x + 12} \div \frac{x^2 + x - 2}{3x^2 - 3x} \cdot \frac{2x^2 + 12x}{6x^3 - 12x^2}$

Bellwork Alg 2A Tuesday, May 30, 2017

Simplify each product or quotient. State restrictions on the variable.

1. $\frac{2x^3 - 8x^2}{x^2 - 8x + 16} \div \frac{10x^4 - 30x^3}{x^2 - 9x + 20}$

2. $\frac{x^2 - 4}{x^2 + 8x + 12} \div \frac{x^2 + x - 2}{3x^2 - 3x} \cdot \frac{2x^2 + 12x}{6x^3 - 12x^2}$

$$\begin{aligned} (1) \quad & \frac{2x^3 - 8x^2}{x^2 - 8x + 16} \div \frac{10x^4 - 30x^3}{x^2 - 9x + 20} \rightarrow \frac{2x^3 - 8x^2}{x^2 - 8x + 16} \cdot \frac{x^2 - 9x + 20}{10x^4 - 30x^3} \\ &= \frac{\cancel{2x^2}(x-4)}{\cancel{(x-4)}(x-4)} \cdot \frac{\cancel{(x-4)}(x-5)}{\cancel{10x^3} \underset{5x}{(x-3)}} \\ &= \boxed{\frac{x-5}{5x(x-3)} \quad x \neq 0, 3, 4, 5} \end{aligned}$$

$$\begin{aligned} & \textcircled{2} \quad \frac{x^2-4}{x^2+8x+12} \cdot \frac{x^2+x-2}{3x^2-3x} \cdot \frac{2x^2+12x}{6x^3-12x^2} \\ &= \frac{x^2-4}{x^2+8x+12} \cdot \frac{3x^2-3x}{x^2+x-2} \cdot \frac{2x^2+12x}{6x^3-12x^2} \\ &= \frac{(x+2)(x-2)}{(x+6)(x+2)} \cdot \frac{3x(x-1)}{(x+2)(x-1)} \cdot \frac{2x(x+6)}{6x^2(x-2)} \\ &= \frac{1}{x+2} \quad x \neq -6, -2, 1, 0, 2 \end{aligned}$$