

Simplify.

$$\frac{2x}{3x^4 + 6x^3 - 24x^2} - \frac{7}{6x^3 - 96x}$$

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$$3x^2(x^2 + 2x - 8)$$

$$6x(x^2 - 16)$$

$$6x(x+4)(x-4)$$

$$\begin{array}{c} -8 \\ +4 \quad -2 \\ +2 \end{array}$$

$$3x^2(x+4)(x-2)$$

$$\frac{2x}{3x^2(x+4)(x-2)} \cdot \frac{4x}{2(x-4)} - \frac{7}{6x(x+4)(x-4)} \cdot \frac{7x}{x(x-2)}$$

$$\frac{4x(x-4)}{6x^2(x+4)(x-2)(x-4)} + \frac{-7x(x-2)}{6x^2(x+4)(x-2)(x-4)}$$

$$= \frac{4x^2 - 16x - 7x^2 + 14x}{6x^2(x+4)(x-2)}$$

$$= \boxed{\frac{-3x^2 - 2x}{6x^2(x+4)(x-2)}}$$