

Simplify each. Show work.

1.
$$\frac{9x^2 + 45x}{x^2 + 3x - 4} \cdot \frac{2x^3 - 32x}{3x^3 + 3x^2 - 60x}$$

2.
$$\frac{12x^3 - 108x}{x^2 - 3x - 18} \div \frac{8x^3 - 24x^2}{x^2 - x - 30}$$

3.
$$\frac{3x}{x^2 + 5x - 14} + \frac{4}{x^2 - 4x + 4}$$

4.
$$\frac{8}{3x^3 - 9x^2 - 12x} - \frac{5}{x^4 - x^3 - 12x^2}$$