

Simplify each.

$$1. \frac{\frac{9}{x^2y} + \frac{2}{xy^4}}{\frac{4}{xy^3} - \frac{7}{x^3y^2}}$$

$$2. \frac{\frac{3}{4x^2y} - \frac{4x}{y^3}}{\frac{y}{2xy^2} + \frac{8}{6x^3}}$$

$$3. \frac{\frac{4}{ab^3} - \frac{5}{c^4}}{6 + \frac{1}{a^4b^2c}}$$

$$4. \frac{\frac{9x}{x-3} - 2}{4 - \frac{7}{x-3}}$$

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$$\textcircled{1} \quad \frac{\frac{9}{x^2y} + \frac{2}{xy^4}}{\frac{4}{xy^3} - \frac{7}{x^3y^2}} \cdot \frac{x^3y^4}{x^3y^4} = \boxed{\frac{9xy^3 + 2x^2}{4x^2y - 7y^2}}$$

$$\textcircled{2} \quad \frac{\frac{3}{4x^2y} - \frac{4x}{y^3}}{\frac{y}{2xy^2} + \frac{8}{6x^3}} \cdot \frac{12x^3y^3}{12x^3y^3} = \boxed{\frac{9xy^2 - 48x^4}{6x^2y^2 + 16y^3}}$$

$$\textcircled{3} \quad \frac{\frac{4}{ab^3} - \frac{5}{c^4}}{6 + \frac{1}{a^4b^2c}} \cdot \frac{a^4b^3c^4}{a^4b^3c^4} = \boxed{\frac{4a^3c^4 - 5a^4b^3}{6a^4b^3c^4 + bc^3}}$$

$$\textcircled{4} \quad \frac{\frac{9x}{x-3} - 2}{4 - \frac{7}{x-3}} \cdot \frac{x-3}{x-3} = \frac{9x - 2(x-3)}{4(x-3) - 7} = \frac{9x - 2x + 6}{4x - 12 - 7} = \boxed{\frac{7x + 6}{4x - 19}}$$