

Algebra 3 Assignment # 10

(1) Express each of the following as a single fraction in simplified form please.

$$(a) \frac{16x^3 + 2x^2 - 3x}{16x^3 + 14x^2 + 3x}$$

$$(b) \frac{x^2 - y^2}{y^2 - xy + yz - xz}$$

(2) Perform the indicated operations. Express each of the following as a single fraction in simplified form please.

$$(a) \frac{6x^2}{5y^4} \cdot \frac{15y^7}{18x^3}$$

$$(b) \frac{\left(64y^{\frac{45}{4}}\right)^{-\frac{4}{3}}}{\left(3x^2\right)^{-3}} \div \frac{x^5}{\left(16y^4\right)^{\frac{1}{2}}}$$

$$(c) \frac{x^3 - 8}{3x^2 - x - 10} \cdot \frac{12x^4 + 17x^3 - 5x^2}{x^3 + 2x^2 + 4x}$$

$$(d) \frac{x^3 - x^2 - x + 1}{5x^2 - 2x - 3} \div \frac{x^3 - x}{20x^2 - 3x - 9}$$

$$(e) \frac{x^3 - 27}{9 - x^2} \div \left(\frac{x^2 + 2x + 1}{x^3 + 1} \cdot \frac{x^3 - x^2 + x}{x^2 + x} \right)$$

$$(f) \frac{x + 2}{3} - \frac{x + 3}{x}$$

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Answers

(1) (a) $\frac{8x - 3}{8x + 3}$

(b) $-\frac{x + y}{y + z}$

(2) (a) $\frac{y^3}{x}$

(b) $\frac{27x}{64y^{13}}$

(c) $x(4x - 1)$

(d) $\frac{4x - 3}{x}$

(e) $-\frac{x^2 + 3x + 9}{x + 3}$

(f) $\frac{x^2 - x - 9}{3x}$