

Algebra 3 Assignment # 6

Review Worksheet

(1) Solve for x please.

(a) $|x - 1| = 2$

(b) $\frac{x+2}{|x+2|} = -1$

(c) $|2 - 3x| + 5 > 9$

(d) $\left| \frac{3 - 7x}{2} \right| \leq 13$

(e) $|2x - 1| - |x + 2| \leq 2$

(f) $\left| \frac{1}{x} + 4 \right| \geq 5$

(2) Simplify each of the following please. Express answers without negative exponents.

(a) $2^x + 2^x + 2^{x+1} + 2^{x+1} + 2^x + 2^x$

(b) $-2(1 + x^2)^{-3}(2x)$

(c) $\frac{(-x^5y^{-2})^4(9x^4y^3)}{6x^{22}y^5}$

(d) $\left(\frac{1}{x^3y^{-1}} \right)^{-2}$

(e) $(-2x)^2(-3x^2)^3 - \frac{8(x^8 + y^{10})^5}{4(x^8 + y^{10})^4} - (4y)^3(2y^7)$

(3) Evaluate each of the following please.

(a) $\frac{9^{-\frac{1}{2}} \cdot 81^{\frac{1}{4}}}{27^{-\frac{2}{3}} \cdot 3^{-2}}$

(b) $\left(\frac{16}{625} \right)^{\frac{3}{4}} + \left(\frac{243}{32} \right)^{\frac{1}{5}}$

(c) $\sqrt[4]{\sqrt{256}}$

(d) $\sqrt[3]{-24} + \sqrt[3]{81}$

Algebra 3 Assignment # 6

(4) Simplify each of the following please. Express answers without negative exponents.

(a) $\sqrt[3]{32x^5y^6z^7}$

(b) $\sqrt[4]{512x^{27}y^{15}z^2}$

(c) $\sqrt[4]{\frac{81x^5}{8y^6}}$

(d) $\sqrt[3]{\frac{3x^{20}}{16y^7z^{10}}}$

(e) $\sqrt[4]{\frac{x^{3n+7}y^n}{x^{3n+3}y^{5n}}}$

(f) $\sqrt[4]{x^2\left(\sqrt[5]{x\left(\sqrt[3]{x^2}\right)}\right)}$

(5) Express each of the following as a polynomial without negative exponents.

(a) $(x^2 - 2x + 1)^2$

(b) $(2x^3 - x^2)(6x - 5) + (3x^2 - 5x)(6x^2 - 2x)$

(c) $-3x^2y^5(-8x^4y^5 + x^{-2}y^{-5} - 3^xxy)$

(6) Rationalize the denominator and simplify please.

(a) $\frac{\sqrt{6} + \sqrt{3}}{\sqrt{6} - \sqrt{3}}$

(b) $\frac{x^{\frac{1}{2}} - 2}{x^{\frac{1}{2}} - 6}$

(7) Solve for x please.

$$|x + 3| + |x + 1| - |x - 2| = 2$$

Algebra 3 Assignment # 6

Answers

(1) (a) $3, -1$

(b) $x < -2$

(c) $x < -\frac{2}{3}$ or $x > 2$

(d) $-\frac{23}{7} \leq x \leq \frac{29}{7}$

(e) $-1 \leq x \leq 5$

(f) $-\frac{1}{9} \leq x \leq 1$ and $x \neq 0$

(2) (a) 2^{x+3}

(b) $\frac{-4x}{(1+x^2)^3}$

(c) $\frac{3x^2}{2y^{10}}$

(d) $\frac{x^6}{y^2}$

(e) $-110x^8 - 130y^{10}$

(3) (a) 81

(b) $\frac{391}{250}$

(c) 2

(d) $\sqrt[3]{3}$

Algebra 3 Assignment # 6

Answers

(4) (a) $2xy^2z^2 \sqrt[3]{4x^2z}$

(b) $4x^6y^3 \sqrt[4]{2x^3y^3z^2}$

(c) $\frac{3x \sqrt[4]{2xy^2}}{2y^2}$

(d) $\frac{x^6 \sqrt[3]{12x^2y^2z^2}}{4y^3z^4}$

(e) $\frac{x}{y^n}$

(f) $\sqrt[12]{x^7}$ or $x^{\frac{7}{12}}$

(5) (a) $x^4 - 4x^3 + 6x^2 - 4x + 1$

(b) $30x^4 - 52x^3 + 15x^2$

(c) $24x^6y^{10} - 3 + 3^{x+1}x^3y^6$

(6) (a) $3 + 2\sqrt{2}$

(b) $\frac{x + 4\sqrt{x} - 12}{x - 36}$

(7) $-8, 0$