Practice Test #7
Algebra P3

Name: KEY

1. Simplify. Answers should not have negative or zero exponents.

a. $x^4 \cdot x^2 \cdot x$

x^7

b. $(4x^3)^2$

$4^2x^6 = 16x^6$

c. $(7m^7)(-3m^7)$

$-21m^{14}$

d. $(x^3y^6)^4$

$x^{12}y^{24}$

e. 6^{-2}

$\frac{1}{6^2} = \frac{1}{36}$

f. $3x^0$

$3(1) = 3$

h. $8x^{-3}$

$\frac{8}{x^3}$

h. $\frac{7}{x^{-5}}$

$7x^5$

i. 19^{-1}

$\frac{1}{19}$

j. $\frac{m^4}{m^{-2}}$

$m^4 \cdot m^2 = m^6$

k. $\frac{x^{-6}}{4y^{-3}}$

$\frac{y^3}{4x^6}$

;. $\frac{2x^{-4}y^3}{8z^{-2}w^{-9}}$

$\frac{z^2y^3w^9}{4x^4}$

2. Turn into scientific notation.

a. 377,900,000

3.779×10^8

b. 9,650

9.65×10^3

c. 0.000000126

1.26×10^{-7}

3. Turn into standard notation.

a. 3.9×10^7

39,000,000

b. 6.02×10^{-4}

.000602

c. 8.6781×10^2

867.81

4. Simplify. Answers should have no zero or negative exponents.

a. $\frac{x^6}{x^8}$

$\frac{1}{x^2}$

b. $\frac{4x^{27}}{12x^{22}}$

$\frac{x^5}{3}$

c. $\left(\frac{x^4}{x}\right)^{-3}$

$= \left(\frac{x^3}{x^4}\right)^3 = \left(\frac{1}{x^3}\right)^3 = \frac{1}{x^9}$

d. $\left(\frac{x^3y}{x^2y^5}\right)^4$

$\left(\frac{x}{y^4}\right)^4 = \frac{x^4}{y^{16}}$

e. $\left(\frac{3m^{-4}}{n^5}\right)^2$

$\left(\frac{3}{m^4n^5}\right)^2 = \frac{9}{m^8n^{10}}$

f. $(4x^3)^0$

1

g. $-(2x^5)^4$

$-(2^4x^{20})$

$-16x^{20}$

h. $(-2x^5)^4$

$(-2)^4x^{20}$

$16x^{20}$

i. $25^{\frac{1}{2}} + 8^{\frac{1}{3}}$

$\sqrt{25} + \sqrt[3]{8}$

$5 + 2$

7

j. $64^{\frac{1}{2}} - 27^{\frac{1}{3}}$

$\sqrt{64} - \sqrt[3]{27}$

$8 - 3$

5

k. $16^{\frac{3}{4}} + 8^{\frac{2}{3}}$

$(16^{\frac{1}{4}})^3 + (8^{\frac{1}{3}})^2$

$2^3 + 2^2$

$8 + 4 = 12$

l. $16^{\frac{3}{2}} - 27^{\frac{2}{3}}$

$(16^{\frac{1}{2}})^3 - (27^{\frac{1}{3}})^2$

$4^3 - 3^2$

$64 - 9 = 55$

m. $\sqrt{49x^{10}y^6}$

$7x^5y^3$

n. $\sqrt[3]{m^9n^{15}}$

m^3n^5

o. $\sqrt[5]{x^{50}y^{20}}$

$x^{10}y^4$

5. Simplify, add or subtract.

a. $-6x^3+5x+2x^3+8x^3$

$4x^3+5x$

b. $7xy-4x^2y-2xy$

$5xy-4x^2y$

c. $(3s^2+4s)-(-10s^2+6s)$

$3s^2+4s+10s^2-6s$

$13s^2-2s$

d. $(7x^2-2x+5)+(-3x^2-8x-1)$

$7x^2-2x+5-3x^2-8x-1$

$4x^2-10x+4$

e. $(5x^2+2x-3)-(9x^2-4x-1)$

$5x^2+2x-3-9x^2+4x+1$

$-4x^2+6x-2$

f. $(7z^2+4-z)-(-5+3z^2)$

$7z^2+4-z+5-3z^2$

$4z^2-z+9$

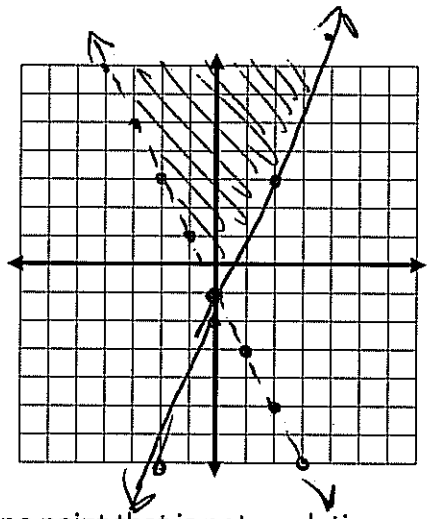
6. a. Graph the system of linear inequalities.

$y>-2x-1$

$5x-2y\le 4$

$\frac{-2y}{-2} \le \frac{-5x}{-2}+\frac{4}{-2}$

$y \ge \frac{5}{2}x-2$



b. Give one point that is a solution to the system above and one point that is not a solution.

solution: $(0,3)$ not a solution: $(3,0)$

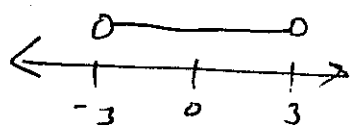
7. Solve for x. Then graph the solutions, if applicable.

a. $|x|=5$

$x=5$ $x=-5$

b. $|x|<3$

$-3<x<3$



c. $|x|>4$

$x<-4$ or $x>4$