Math 05, Homework 5 on Sections 4.1, 4.3, 5.1, 5.2
due Tue, Oct 27.

Write all your working out and answers on a separate sheet. It is very important that you show clearly any work you had to do to get the answer. These first ten questions are 1 point each and **the answers are on page 2**.

(1) Graph the two lines $x + 2y = 4$ and $x - y = 1$ on the same axes and estimate the point where they meet.

(2) Solve the system of equations:

$$2x + 3y = 11$$
$$x - y = 3$$

(3) What is the value of the x-coordinate of the solution to the system:

$$3x - 2y = 10$$
$$-4x - 3y = -2$$

(4) Simplify: $(3x^4)(7x^5)(2x)$

(5) Simplify: $\dfrac{24a^6b^7c^2}{3a^3bc^2}$

(6) Simplify: $(-2x^2)^3(3x^2)^3$

(7) Simplify: $\dfrac{m^4 \cdot m^{-5}}{m \cdot m^3}$

(8) Simplify: $\dfrac{75x^{-3}(y^2)^{-4}}{5y^3x^3}$

(9) Convert into scientific notation: **(a)** 0.0000038, **(b)** 670000

(10) Convert into scientific notation: **(a)** $(6 \times 10^{-2})(7 \times 10^{-4})$, **(b)** $\dfrac{4 \times 10^{-2}}{5 \times 10^{20}}$

These next eight questions are 3 points each. Show clearly all your working out and reasoning.

(11) Graph the two lines $-2x + y = 2$ and $-x + 2y = -2$ on the same axes and estimate the point where they meet.

(12) Solve the system of equations:

$$5x + 2y = 20$$
$$5x - 3y = -5$$

(13) Simplify: $(y^3)(5y^5)(4y^2)$
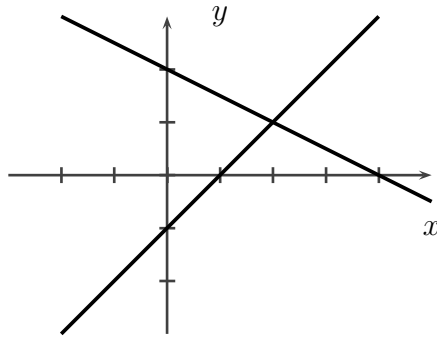
(14) Simplify: $(-4x^3)^2(2x^4)^4$

(15) Simplify: $\dfrac{a^{-3} \cdot a^6}{a^9 \cdot a^{-7}}$

(16) Simplify: $\dfrac{4x^6(y^{-3})^5}{(2x^3)^2 y^{-15}}$

(17) Convert into scientific notation: **(a)** 0.00099,   **(b)** 52000000

(18) Convert into scientific notation: **(a)** $(9 \times 10^6)(8 \times 10^5)$,   **(b)** $\dfrac{2 \times 10^5}{5 \times 10^{-11}}$

Answers to questions (1)-(10):

(1)   The lines meet at the point $(2, 1)$.

(2) Solution is $(x, y) = (4, 1)$.

(3) The x-coordinate of the solution is 2.

(4) $42x^{10}$

(5) $8a^3b^6$

(6) $-216x^{12}$

(7) $\dfrac{1}{m^5}$

(8) $\dfrac{15}{x^6 y^{11}}$

(9) **(a)** 3.8×10^{-6},   **(b)** 6.7×10^5

(10) **(a)** 4.2×10^{-5},   **(b)** 8×10^{-23}