Problem Set 8

1. Simplify each of the following.

   a) $x^5 \cdot x^7$ b) $(-x)^4 (-x)^7$ c) $-a^4 (-a)^6$

2. Simplify each of the following.

   a) $\left(3\sqrt{2} - 5\right)^2$ b) $\left(3\sqrt{2} - 5\right)\left(3\sqrt{2} + 5\right)$ c) $2x^2 - 3x + 5$ if $x = \sqrt{6} - 3$

3. Factor out the greatest common factor in each of the following expressions.

   a) $3x - 15$ c) $5x^6 - 5x^4 - 5x^3$ e) $2p^3q - 6p^2q^2 + 4pq^2 - 6pq$

   b) $2x^3 + 10x$ d) $3a^2b + 3a^4b - 3a^2b^5$

4. Factor out -1 from each of the following.

   a) $-8x - 15$ b) $-2x^2 - 5x + 12$ c) $-2ab + 3a + 7$

5. Graph the equation $y = 2x - 3$

6. Graph the equation $y = -\frac{1}{2}x + 2$

7. Solve each of the following equations.

   a) $\frac{2x-3}{5} - \frac{x-1}{2} = \frac{x}{3} - 4$ c) $\frac{3x-5}{2} - \frac{5x-1}{3} = -\frac{x+13}{6}$

   b) $\frac{2}{3}(x-1) - \frac{3}{4}(x+2) = \frac{1}{2}x - 8$ d) $(2x-3)^2 - (x-1)(3x+2) = x(x-10)$