

Homework Assignment # 1

Due: Wednesday, January 28, at the *beginning* of class.

- *From Ch. 1 of Kinsey & Moore (Wednesday's Handout):*

Section 1.1: # 6, 8, 10, 13, 14, 17.

Section 1.2: # 1, 3, 9, 10, 13.

- *General Algebra Review*

1. For each list of integers below, find the *greatest common factor* and the *least common multiple*:

(a) 16, 21, 12, 10

(b) 105, 168, 294

2. Solve each of the following equations for x :

(a) $3x^2 - 6x - 45 = 0$.

(b) $\cos 2x = \sqrt{2}/2$.

(c) $2x^3 - 33 = -7$.

3. Simplify the following expressions:

(a) $\frac{x^2+56(2x-3)}{3} - (x+2)(x-24)$.

(b) $\frac{32}{45} + \frac{3}{10} + \frac{1}{18}$.

4. In the xy -plane, plot in the points $A = (2, -1)$, $B = (-3, 4)$, and $C = (6, 5)$.

(a) Find the distance between A and C , using algebra.

(b) Find an equation for the line which passes through B and C .

(c) Find an equation for the line which passes through the origin $(0, 0)$ and is parallel to the line in part (b).

- *From Friday's class discussion*

What do mathematicians mean by a "proof" of a theorem (i.e. of a mathematical statement)? How is a proof different from an example? After answering in general, it may be helpful to frame your explanation in a specific context, e.g. in terms of one of the theorems from Ch. 1 of Kinsey & Moore.