MATH 20C
WINTER 2020
SECTION D00 (MANNERS)

HOMEWORK – WEEK 1

Due by 2359 (11:59 PM) on Sunday January 12. Hand in via Gradescope.

For problem 0, credit is awarded for any honest response, not for the amount of work undertaken.

For problems 1,2 and 3, you *must* give a fully written-out solution showing all your working and justification. Stating the correct answer, by itself, will earn no credit.

0. Do the following textbook problems. *Do not turn them in*, but provide a list here of those for which you wrote down solutions.

§1.1: 1, 5, 7, 9, 11, 13, 17, 25

(*1 points*)

1. Do the points $(1, 4, 9)$, $(-1, 5, 11)$ and $(5, 2, 5)$ lie on the same line? Justify your answer.

(*6 points*)

2. Do the lines with parametric form $\{(1, 2, 3) + s(1, 1, 1) : s \in \mathbb{R}\}$ and $\{(1, 1, 1) + t(1, 2, -3) : t \in \mathbb{R}\}$; i.e.,

$$x = 1 + s \qquad y = 2 + s \qquad z = 3 + s$$

and

$$x = 1 + t \qquad y = 1 + 2t \qquad z = 1 - 3t;$$

intersect? Justify your answer.

(*6 points*)

3. Consider the points $A = (2, 4, -4)$, $B = (-4, -5, 11)$ and $C = (2, 5, 7)$ and $D = (3, 7, 10)$. Consider the *line segment* joining A and B, and the *line segment* joining C and D. Do they intersect? Justify your answer.

(*6 points*)