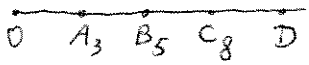
Math 372 Quiz 2 Total points: 10
Instructor: Yi Wang

Name(Print)_____ Section_____ Grade_____

1. (2 points) The coordinates of A, B, and C on line ℓ are, respectively, 3,5, and 8. If $A - B - C - D$ and $BD = 6$,
   (a) Find the coordinate of D, and
   (b) Show that C is the midpoint of $\overline{BD}$

(a) 

let $D[d]$,

$BD = 6 = |d-5| \Rightarrow d = 11$ or -1

Since $A-B-C-D$, we must have $d > 8$, so $d = 11$

(b) $BC = 8-5 = 3$ $DC = 11-8 = 3$

so C is the midpoint of $\overline{BD}$.

2. Prove if a line meets a plane and is not contained by that plane, their intersection is a point.

proof: Given $A \in \ell \cap P$, and $\ell \not\subset P$.

Assume B is ~~also one of~~ another intersection point, i.e., $B \in \ell \cap P$, and $B \neq A$.

Then $\{A, B\} \subset \ell$ and $\{A, B\} \subset P$

i.e. The line ℓ passes through the points A, B and hence $\ell \subset P$, which is a contradiction.