5397

HW 2

	Points
2.4 2	3
6	3
10	4
16	4
2.5 8	3
10	4
12	3
2.6	
4	4
8	3
10	2

33 points

2.4

2. $\overbrace{\underbrace{B - D}_{3} \underbrace{- C}_{3}}^{6}$

6. a.) $\{A\} \cup \overrightarrow{CD}$

b.) $\{A\} \cup \overline{BC}$

c.) $\overline{AB}$

10. a.) $x \geq 3$ or $[-3, \infty)$

b) $x \geq -1$ or $[-1, \infty)$

c.) $5 \leq x \leq 6$ or $[5, 6]$

d.) $(-\infty, \infty)$ or All Reals

16. let $x \in \overline{AB}$

if $A = x$ or $x = B$, then $x \in \overrightarrow{AB}$ and $\overleftrightarrow{AB}$

if $A - x - B$ then $x \in \overrightarrow{AB}$ and $\overleftrightarrow{AB}$

let $A - B - x$ for $x \in \overrightarrow{AB}$

then $x \in \overleftrightarrow{AB} = \{x \mid x = A, x = B, A - x - B, x - A - B,$ or $A - B - x\}$

$\square$

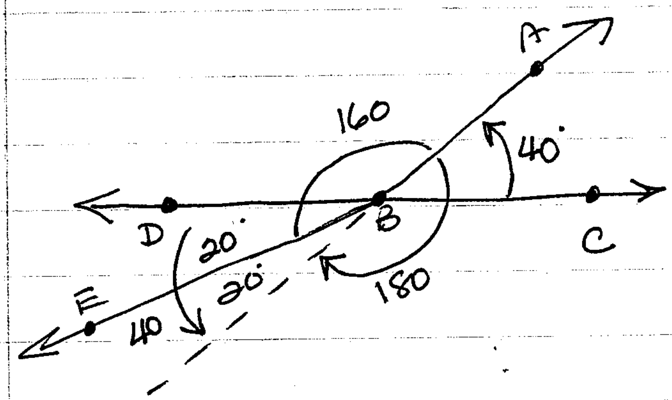
2.5

8 a) $m\measuredangle QMX = 20$

b) $m\measuredangle QMY = 70$

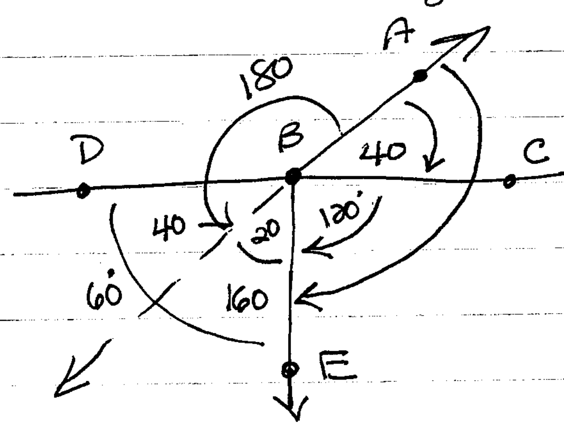
c) the angles sum to 90° $\overline{YM} \perp \overline{MX}$

10. Extend $\overleftrightarrow{AB}$ if $\overrightarrow{BE}$ is to the left 20°



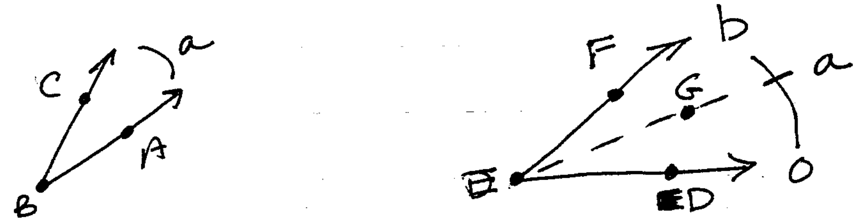
or

if $\overrightarrow{BE}$ is to the right 60



2.5 (12) The bisector of any angle exists & is unique

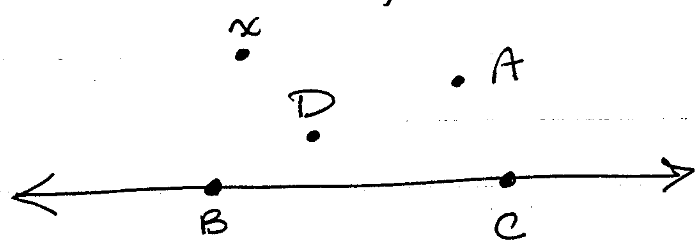
Let $m\angle ABC = a < b = m\angle DEF$
set $\overrightarrow{EF}$ as [0] and note that
$\overrightarrow{ED} = [b]$ by the protractor P.



now there exists a ray $\overrightarrow{EG}$ on the F side of $\overleftrightarrow{ED}$ with measure a by the protractor postulate and it is unique by the protractor postulate because of the 1:1 relationship w/. the coordinates

2.6

(4) given $D \in H(A, \overleftrightarrow{BC})$



show $H(D, \overleftrightarrow{BC}) = H(A, \overline{BC})$

$H(D,\overleftrightarrow{BC}) \subset H(A,\overleftrightarrow{BC})$

let $x \in H(D, \overleftrightarrow{BC})$, ~~because~~ $\overline{xD}$ is contained entirely in the half plane by convexity, and we know $\overline{xA}$ is contained in the half plane as well. this put $x \in H(A, \overleftrightarrow{BC})$

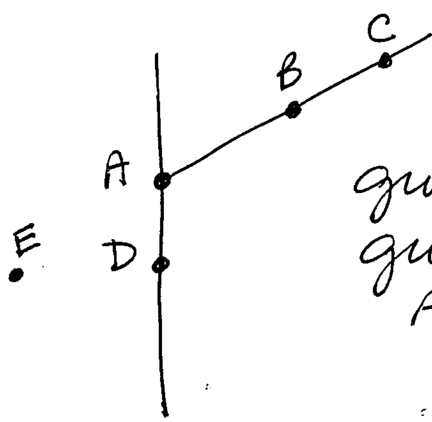
$H(A,\overleftrightarrow{BC}) \subset H(D,\overleftrightarrow{BC})$

let $x \in H(A, \overleftrightarrow{BC})$, thus $\overline{xA}$ is entirely in the half plane, now $\overline{xD}$ is also since $D \in H(A, \overleftrightarrow{BC})$, thus $x \in H(D, \overleftrightarrow{BC})$

there's set containment in either direction $\square$

2.6

(8)



given $B \notin \overleftrightarrow{AD}$

given $A-B-C$ B is between A & C, thus collinear w/. A & C

show $C \in \cancel{\notin} H(B, \overleftrightarrow{AD})$

There are only 3 places C can be

$C \in \overleftrightarrow{AD}$ $\rightarrow\leftarrow$ then B is on $\overleftrightarrow{AD}$

$C \in H(E, \overleftrightarrow{AD})$ the other halfplane then $C-A-B$

~~$\rightarrow\leftarrow$ then B is on $\overleftrightarrow{AD}$~~

$\therefore$ $C \in H(B, \overleftrightarrow{AD})$

10. two half planes w/. a nonempty intersection do not always form the interior of an angle