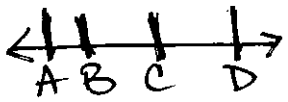
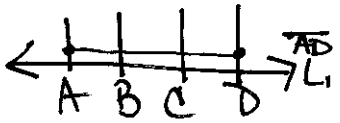
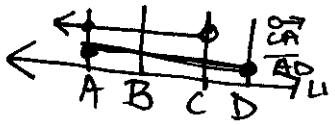
ex= $\overline{AD} \cup \overrightarrow{CA} = \overrightarrow{DA}$



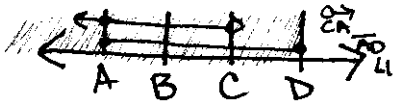
step 1- diagram & label $\overline{AD}$



step 2- diagram & label $\overrightarrow{CA}$



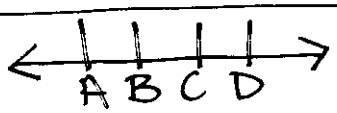
step 3- find total portion which contains a combination of both lines.



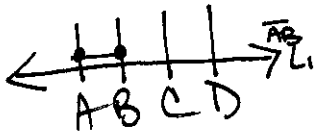
NOTE = The answer is $\overrightarrow{DA}$ because D is the farthest right that either line goes. $\overrightarrow{CA}$ continues left. Our answer must stop at D and continue left.

---

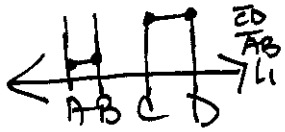
ex= $\overline{AB} \cup \overline{CD} = \emptyset$



step 1-



step 2-

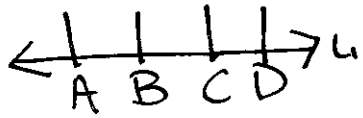


step 3- find portion which contains both lines combined.

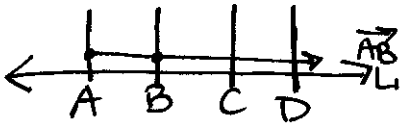
NOTE:
The answer is $\emptyset$ because we cannot combine the two segments

• intersection ($\cap$) - a common set of points where both sets meet.
- the area where two lines overlap/intersect.

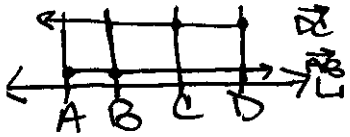
ex: $\overrightarrow{AB} \cap \overrightarrow{DC} = \overline{AD}$



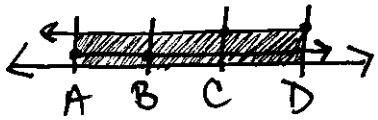
Step 1 - diagram & label $\overrightarrow{AB}$



Step 2 - diagram & label $\overrightarrow{DC}$

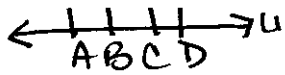


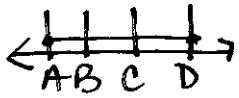
Step 3 - [redacted]
find common area where both lines lie together/intersecting.

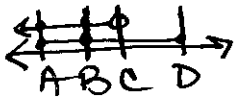


NOTE=
The answer is $\overline{AD}$ because this is the only area where both lines meet. Only $\overrightarrow{AB}$ goes further right. Only $\overrightarrow{DC}$ goes further left.

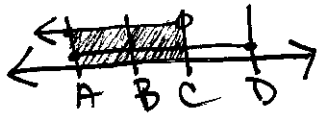
ex= $\overline{AD} \cap \overrightarrow{CA} = \overline{AC}$



step1- 

step2- 

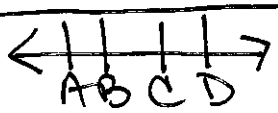
step3- find portion where both lines intersect.

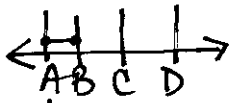


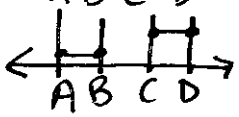
NOTE= The two lines only intersect from A to C not including C.

---

ex= $\overline{AB} \cap \overline{CD} = \emptyset$



step1- 

step2- 

step3- find area where they intersect

NOTE= They do not intersect.

★Planes

Plane - two dimensional surface that extends infinitely in both directions.

Properties of a Plane

① any three points not on same line.
ex=

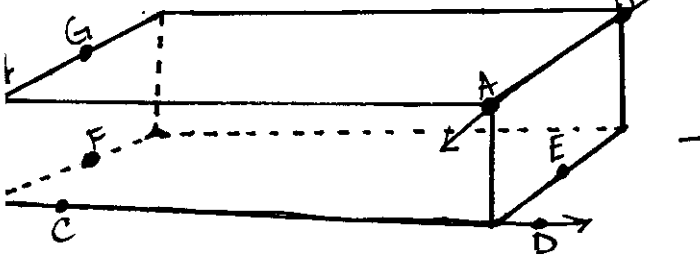
② line in plane divides the plane into 3 parts.
ex=

③ any line & a point not on the line.
ex=

④ intersection of two planes is a line.
ex=

- 2 planes that do not intersect are parallel planes.
- 2 lines that do not lie on same plane & do not intersect are skewed lines.

ex=



parallel planes:

skewed lines:

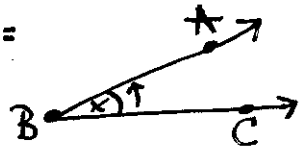
★ Angles

angle (∠) · union of 2 rays w/ a common end point.

· each angle has a _____ side & a _____ side.

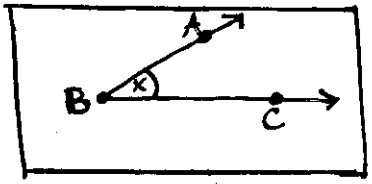
· _____ - position of ray before rotation.

· _____ - position of ray after rotation.

ex= 

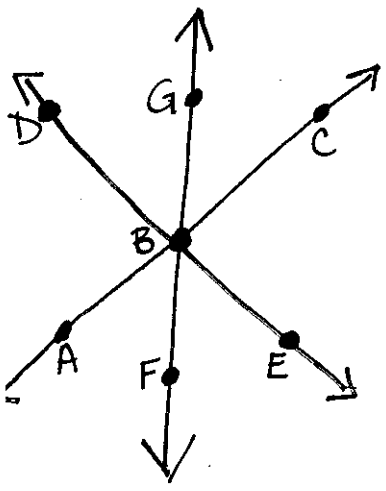
initial -
terminal -
vertex -

angle divides plane into 3 distinct parts



· measure of angle (m) - amount of rotation from initial to terminal.

ex = $m\angle ABC = x$



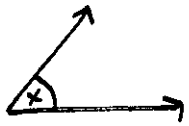
① $\overrightarrow{BG} \cup \overrightarrow{BF} =$

② $\angle ABG \cap \angle DBC =$

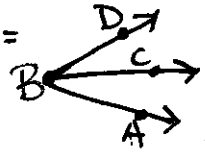
③ $\overleftrightarrow{DE} \cap \angle CBE =$

④ $\overrightarrow{BD} \cup \overrightarrow{BC} =$

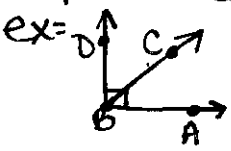
Types of Angles

Right Angle (∟)  X=	Acute Angle  $<X<$
Obtuse Angle  $<X<$	Straight Angle  X=

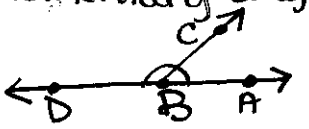
- adjacent angles- 2 angles in same plane w/ common vertex & common side but no common interior points.

ex=  adjacent angles: _____

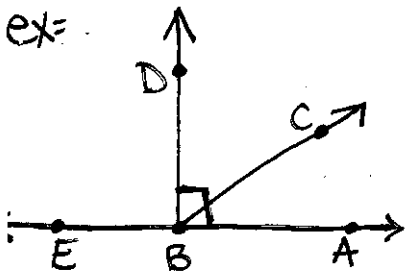
- complimentary angles- sum of two angles = 90°

ex= 

- supplementary angles- sum of two angles = 180°

ex= 

ex=



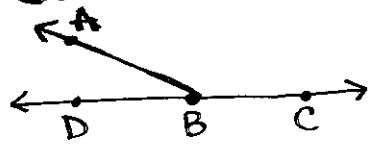
① ∠ABC & ∠CBD are complimenta
m∠ABC = 40° Find m∠CBD.

② ∠ABC & ∠CBE are supplementar
m∠ABC = 40° Find m∠CBE.

③ ∠ABC & ∠CBD are complementar
m∠ABC = 26° less than m∠CBD
Find m∠ABC & m∠CBD.

---

ex=

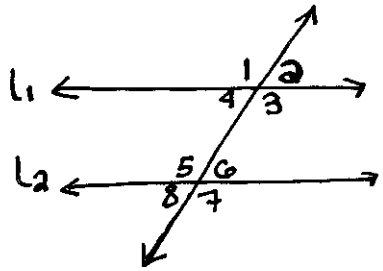


① ∠ABC & ∠ABD are supplementary
m∠ABC = 5 times larger than m∠ABD.
Find m∠ABC & m∠ABD.

·Vertical angles- when 2 straight lines intersect, the non-adjacent angles are called vertical angles.
·Vertical angles have equal measures.
ex=

·transversal- a line that intersects 2 different lines at 2 different points.

ex=



8 angles are formed.
-interior angles-
-exterior angles-

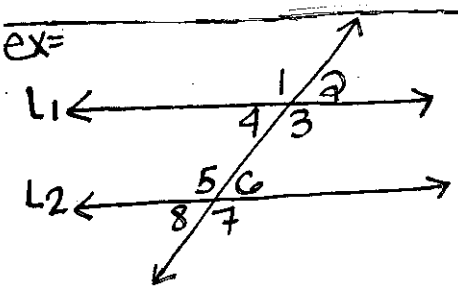
_____ · alternate interior angles- int. ∠ on opposite sides of transversa

_____ · alternate exterior angles- ext. ∠ on opposite sides of transversa

_____ · corresponding angles- 1 int. & 1 ext. ∠ on same side of transversc

---

ex=



$m\angle 8 = 53°$ Find $m\angle 1-7$.

① _____
② _____
③ _____
④ _____
⑤ _____
⑥ _____
⑦ _____
⑧ 53°