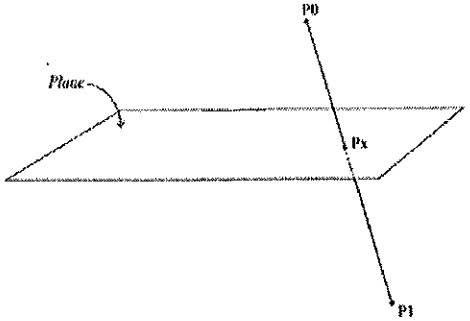
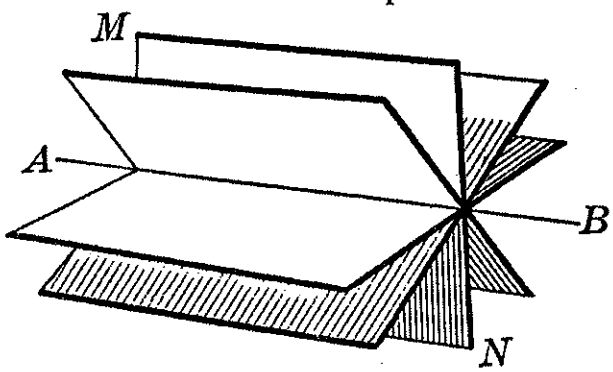
1. The intersection of a plane and a line is a **_POINT_____**



2. What is the intersection of the plane and the line above? $\mathbf{P_x}$

3. The intersection of a plane and another plane is a **_LINE_____**



4. What is the intersection of all the planes in the figure above? $\overleftrightarrow{\mathbf{AB}}$

5. A midpoint divides a line segment into two **___Congruent_____** segments.

6. Can a line have a midpoint? Why? Why not?**No, because lines go on forever in both directions. They have no measure.**

7. What does congruent mean? **Equal in measure.**

8. To designate a line, you must have at least **____2____** points.

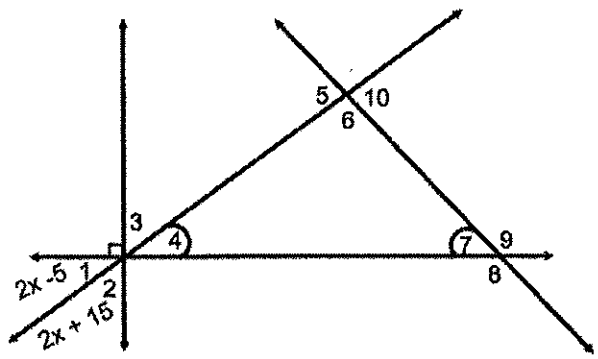
9. To designate a plane, you must have at least **____3___**points that are **__noncollinear__** .

10. In the diagram below, AC = 120. What are AB and BC?

4x + 6 + 7x + 15 = 120
11x + 21 = 120
-21 -21
11x = 99
11 11
x = 9

AB = 4(9) + 6 = 42
BC = 7(9) + 15 = 78

11. Find the missing angle measures



a. 2x – 5 + 2x + 15 = 90
4x +10 = 90
-10 -10
4x = 80
4 4
x = 20

<1 = 2(20) – 5 = 35
<2 = 2(20) + 15 = 55

b. <4 is vertical to <1, so it is congruent to <1. <1 is 35, so <4 is 35.
c. <4 is congruent to <7 due to same tic marks. <4 is 35, so <7 is 35.
d. <7 and <9 are a linear pair, so < 9 =180 – 35 = 145.
e. <4, <6, and <7 are three angles of a triangle. A triangle has 180 degrees. <4 and <7 combined equal 70. So, <6 = 180 – 70 = 110.
f. <6 and <10 are a linear pair, so <10 = 180 – 110 = 70.
g. <5 and <10 are vertical so they are congruent. <10 = 70, so <5 = 70.

h. <9 and <8 are vertical so they are congruent. <9 = 145, so <8 = 145.
i. <2 and <3 are vertical so they are congruent. <2 = 55, so <3 = 55.

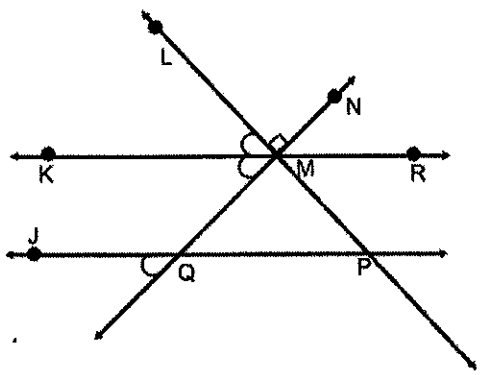
In the figure below, name all the angles

12. Supplementary to <JQM **<PQM, <JQS**

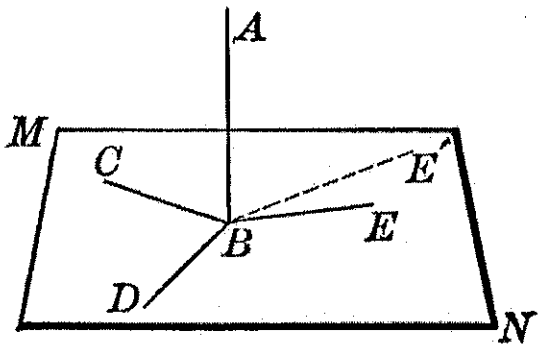
13. Adjacent and congruent to <KMQ
Adjacent: <KML, <QMP
Congruent: <KML, <JQS, <NMR, <RMP, <MQP
Adjacent and Congruent: <KML

14. A linear pair with <LMQ **<LMN**

15. Complementary to <NMR **<RMP**

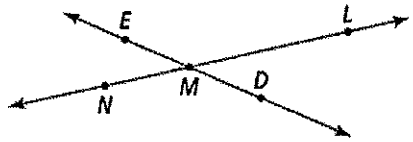


16. In the figure below, you can see that the lines on a plane can go in
A. only one direction
B. only parallel to each other
C. only perpendicular to each other , or
D. all directions



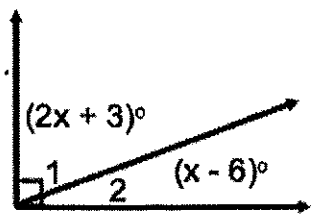
17. Since all the points on a plane are ____**coplanar**_____, then all the points on the lines on a plane are also__ **coplanar** _____.

18. For the figure below, give three other names for NM.



$\overleftrightarrow{MN}$, $\overleftrightarrow{ML}$, $\overleftrightarrow{LM}$, $\overleftrightarrow{NL}$, $\overleftrightarrow{LN}$

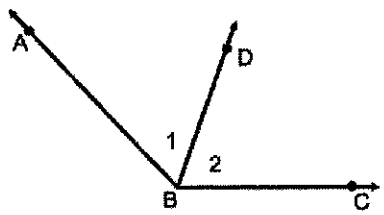
19. What kind of angles are angles 1 and 2? Find the measures of angles 1 and 2.



2x + 3 + x – 6 = 90
3x – 3 = 90
+3 +3
3x = 93
3 3
x = 31

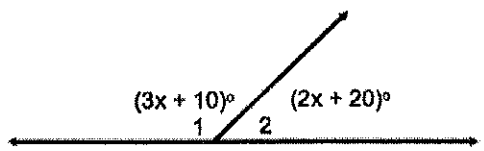
<1 and <2 are each acute angles.
<1 = 2(31) + 3 = 65
<2 = 31 – 6 = 25

20. Give two other names for <1.



<ABD, <DBA

21. In the figure below, what kind of angles are angles 1 and 2. Find the measures of angles 1 and 2.

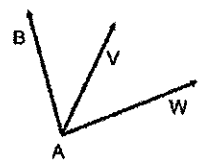


<1 and <2 are supplementary angles.
<1 and <2 are a linear pair.
<1 is an obtuse angle.
<2 is an acute angle.

3x + 10 + 2x + 20 = 180
5x + 30 = 180
-30 -30
5x = 150
5 5
x = 30

<1 = 3(30) + 10 = 100
<2 = 2(30) + 20 = 80

22. AV bisects <BAW. m<BAW = 82°. What is m<BAV? **31°**



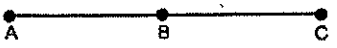
23. B is the midpoint of $\overline{AC}$. AC = 10. What is AB? What is BC?

AC = 10
Since B is the midpoint of $\overline{AC}$, AB is one-half of 10, or 5.

24. The endpoints of $\overline{AC}$ are (3,8) and (12, -3). What are the coordinates of the midpoint B?

$\frac{3 + 12}{2} = 7.5$ $\frac{8 + (-3)}{2} = 2.5$ **(7.5, 2.5)**

25. The midpoint of $\overline{AC}$ is B(-6, 7). If the coordinates of C are (8, 14), what are the coordinates of A?



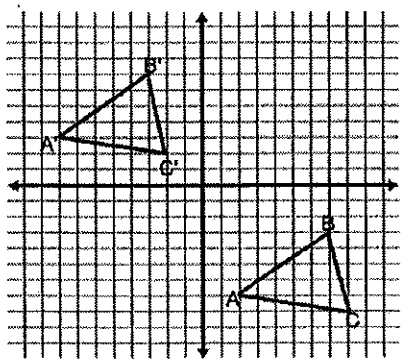
$\frac{8 + x}{2} = -6$ $\frac{14 + y}{2} = 7$

$8 + x = -12$ $14 + y = 14$

$-8 \quad -8$ $-14 \quad -14$

$x = -20$ $y = 0$ **(-20,0)**

26. In the diagram below, Δ A'B'C' is an image of Δ ABC. Write a rule that describes this translation.

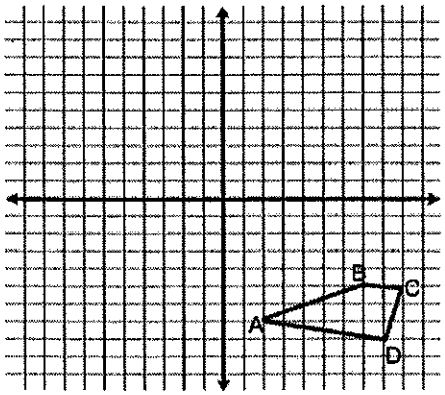


$T_{<-10,\ 10>}$(ABC)

27. Δ ABC has coordinates A(5,6), B(10,3), and C(0,0). A translation maps point A to A' at (-6, -6). What are the coordinates for B' for this translation?

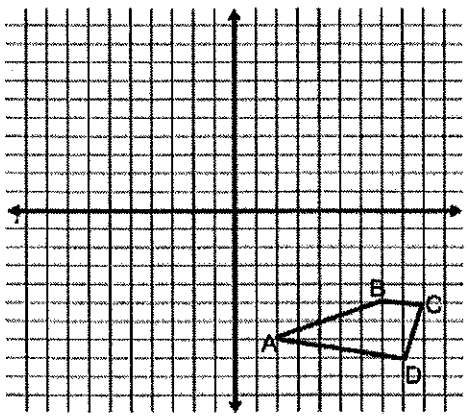
Point A's x changed from 5 to -6. That is a decrease of 11, so -11.
Point A's y changed from 6 to -6. That is a decrease of 12, so -12.
Point B's x would change 10 – 11 = -1
Point B's y would change 3 – 12 = -9
Point B'= (-1, -9)

28. In the graph below, what are the coordinates of $R_{x\text{-axis}}(ABCD)$?



A(2, -7) A'(2, 7)
B(7, -5) B'(7, 5)
C(9, -5) C'(9, 5)
D(8, -8) D'(8, 8)

29. In the graph below, what are the coordinates of A"B"C"D" after $R_{x=1}(ABCD)$ and then $T_{<4,1>}(A'B'C'D')$?



A(2, -7) **A'(0, 7)** **A"(4, 8)**
B(7, -5) **B'(-5, 5)** **B"(-1,6)**
C(9, -5) **C'(-7, 5)** **C"(-3, 6)**
D(8, -8) **D'(-6, 8)** **D"(-2, 9)**

For the figure below:

30. What is another name for plane T?

plane AEC, plane AED, plane ABE, plane ABD, plane ABC, plane BED, plane BEC

31. Name two opposite rays in the diagram.

$\overrightarrow{DC}$ and $\overrightarrow{DE}$ or $\overrightarrow{BF}$ and $\overrightarrow{BG}$

32. Where would FG intersect plane T?

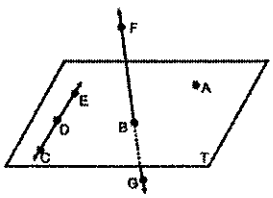
point B

33. Name all the coplanar points for plane T.

points C, D, E, B, and A

34. Name two sets of three collinear points in the diagram.

Points C,D,E and Points F,B,G



For the figure below:

35. Name a pair of vertical angles.

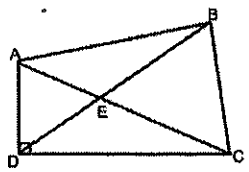
<AEB and <DEC or <AED and <BEC

36. Name a pair of adjacent angles with vertex D. **<ADE and <EDC**

37. Name a linear pair. **<DEA and <AEB, <AEB and <BEC, <BEC and <CED, or <CED and <AED**

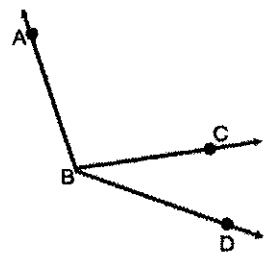
38. Name a pair of complementary angles. **<ADE and <EDC**

39. Name a pair of supplementary angles. **<DEA and <AEB, <AEB and <BEC, <BEC and <CED, or <CED and <AED**



In the figure below:

40. If m<ABD = 149, m<CBD = 3x - 5, and m<ABC = 5x + 2, find the value of x.
41. <ABD is what type of angle?
42. <ABC is what type of angle?
43. <CBD is what type of angle?



3x – 5 + 5x + 2 = 149
8x -3 = 149
+3 +3
8x = 152
8 8
x = 19

<ABD is an obtuse angle.
<ABC is an obtuse angle.
<CBD is an acute angle.

44. What is the distance between points P(3, 14) and K(-6, 3) to the nearest tenth?

$$d = \sqrt{(3 - -6)^2 + (14 - 3)^2}$$

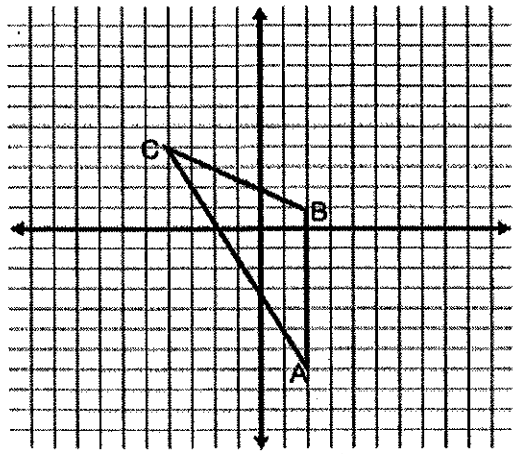
$$d = \sqrt{(9)^2 + (11)^2}$$

$$d = \sqrt{81 + 121}$$

$$d = \sqrt{202}$$

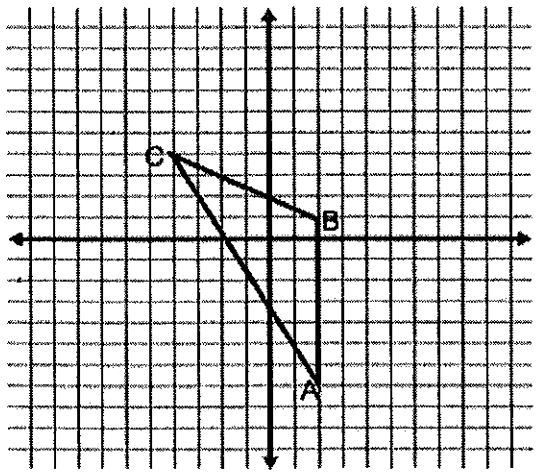
$$d = 14.2$$

45. $R_{y=1}(ABC)$



A(2, -7) **A'(2, 9)**
B(2, 1) **B(2, 1)**
C(-4, 4) **C(-4, -2)**

46. $R_{x=2} \circ T_{<2,3>}(ABC)$



A(2, -7) **A'(2, -7)** **A''(4,-4)**
B(2, 1) **B(2, 1)** **B''(4, 4)**
C(-4, 4) **C(8, 4)** **C''(10, 7)**