

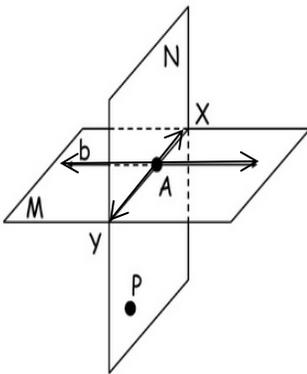
1) Euclid was the first mathematician of his time to use the axiomatic method which consisted of four parts:

- a) \_\_\_\_\_ terms, which lead to
- b) \_\_\_\_\_, which lead to
- c) \_\_\_\_\_ (also called axioms, which are accepted as true), which lead to
- d) \_\_\_\_\_ (which are proven by deductive reasoning).

2) Determine the term suggested by each of the following:

- a) The tip of a pencil.
- b) The ceiling in your classroom.
- c) Telephone wires.
- d) The lid of a box.
- e) Freckles on your face.

3) Use the diagram to classify each statement as true or false:

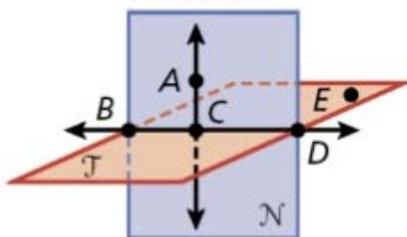


- a)  $P$  is in  $M$ .
- b)  $b$  is in  $M$ .
- c)  $\overline{YX}$  contains  $P$ .
- d)  $M$  contains  $\overline{YX}$ .
- e)  $A$  is on  $b$ .
- f)  $A$  and  $X$  are in  $M$ .
- g)  $N$  contains  $P$ .
- h)  $\overline{AX}$  ends at  $X$ .
- i)  $\overline{YX}$  contains 3 points.

4) Use the diagram above to answer the questions:

- a) Are points  $Y, X$  and  $A$  collinear?
- b) Name the line that intersects  $\overline{YX}$ .
- c) Name a pair of opposite rays.
- d) What geometric figure is formed when two planes intersect?

5) Use the diagram below to answer the questions:

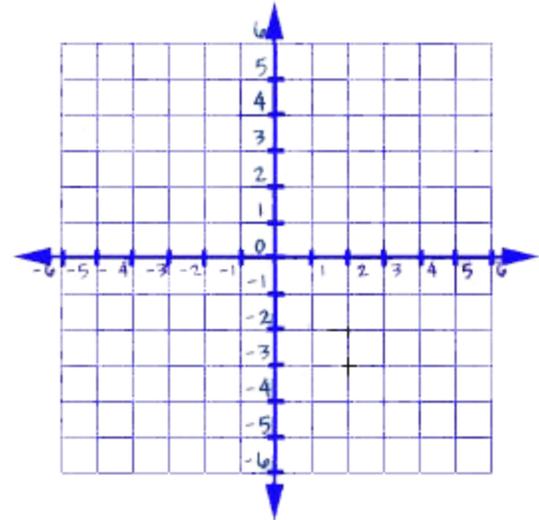


- a) Name a point on  $\overline{CD}$ .
- b) Name the plane containing  $E, D,$  and  $B$  in two different ways.
- c)  $\overline{CB}$  and  $\overline{CD}$  are an example of \_\_\_\_\_.
- d) Find and name an angle formed by the intersection of the two lines.
- e) Name the vertex and sides of the angle found in part (d).
- f) Are points  $A, C$  and  $E$  coplanar?
- g) Is  $\angle C$  an acceptable name for an angle in this diagram? Why or why not?



6) Sketch and label the following:

- a) a ray with endpoint  $M$  that contains  $N$ .
- b) Plane  $R$  containing  $\overline{AB}$  and  $\overline{DE}$  which intersect at Point  $P$ . Add  $C$  on Plane  $R$  so that it is not collinear with  $\overline{AB}$  or  $\overline{DE}$ .
- c) A right angle,  $\angle PIG$ , with  $\overline{IS}$  bisecting it. Label all angle measures.
- d)  $\overline{CR}$  on a coordinate plane contains  $C(-2, 4)$  and  $R(4, -4)$ . Graph and label  $C$  &  $R$  and add point  $A$  so that  $A$  bisects  $\overline{CR}$ . What are the coordinates of  $A$ ?

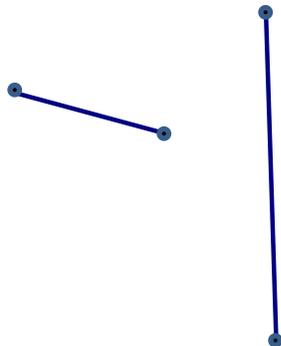


7) Which of the following is an incorrect way to name a line?

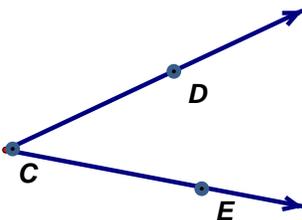
(multiple choice)

- A) By the closest points on the line.
- B) By a single lowercase letter.
- C) By three points on the line.
- D) By any two points on the line.

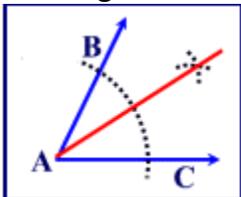
8) Construct a segment whose length is the difference of the two given segments.



9) Construct and label an angle,  $\angle ECF$ , whose measure is twice the measure of the given angle.



10) The diagram below shows the final step of which construction?



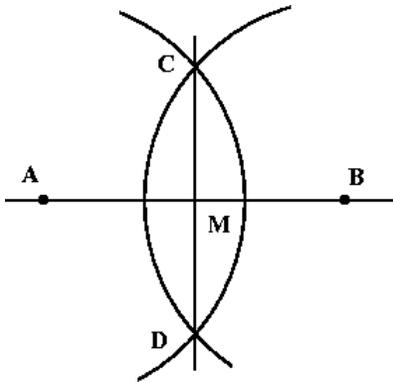


11) Which of the following constructions at point  $D$  in the figure below will produce an angle that measures  $45^\circ$ ? (multiple choice)



- A) Constructing the bisector of  $\angle ADC$  only.
- B) Constructing a circle with center  $D$  only.
- C) Constructing one perpendicular line.
- D) Constructing a circle with center  $D$  and a perpendicular line.
- E) Constructing a perpendicular line and an angle bisector.

12) The figure below shows the construction of the perpendicular bisector of  $\overline{AB}$  using a compass. Which of the following statements must always be true in the construction of the perpendicular bisector?



Answer YES or NO for each statement.

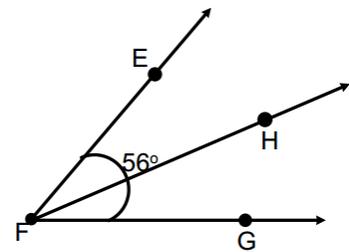
- a)  $AC = BC$
- b)  $AC = BD$
- c)  $AM = MB$
- d)  $MC = MB$

13) Copy  $\overline{AB}$ . Divide it into 4 segments of equal length.

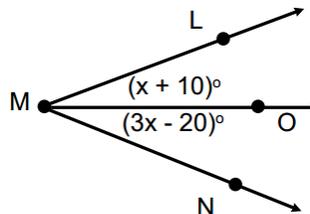


14) Angle Bisectors:

a)  $\angle EFG$  is bisected by  $\overline{FH}$ . The  $m\angle EFG = 56^\circ$ . Find the measures of both unmeasured angles.



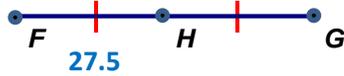
b)  $\overline{MO}$  bisects  $\angle LMN$ . Find the value of  $x$ .





15) Segment Bisectors:

a)



$GH = \underline{\hspace{2cm}}, FG = \underline{\hspace{2cm}}$

b)

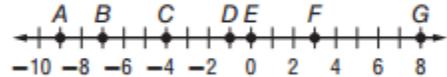


$M$  is the midpoint of  $\overline{AB}$

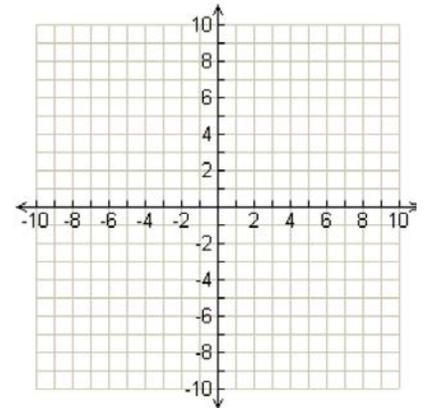
$x = \underline{\hspace{2cm}}, AM = \underline{\hspace{2cm}}$

16) Use the number line to find each measure.

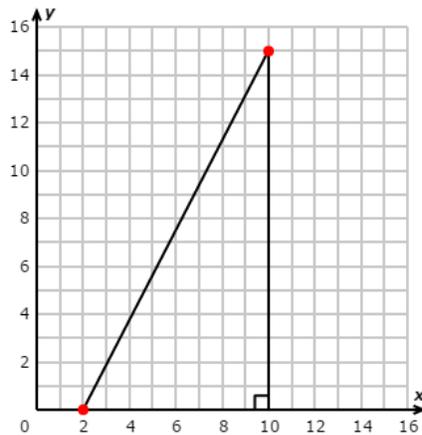
- a)  $BD$
- b)  $AF$
- c)  $BG$
- d)  $BE$



17) Graph the points  $C(2, 2)$  and  $D(6, 2)$ . Find the midpoint of  $\overline{CD}$ . Find the length of  $\overline{CD}$ .



18) Find the distance between  $(2, 0)$  and  $(10, 15)$ .



19) The point  $(-3, -6)$  lies on a circle. What is the length of the radius of this circle if the center is located at  $(9, -2)$ ?

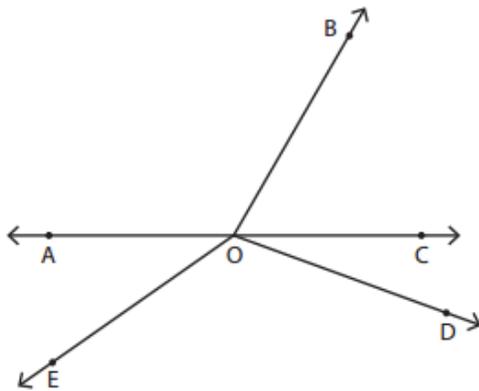
20) The point  $(1, 2)$  lies on a circle. What is the diameter of this circle if the center is located at  $(7, 10)$ ?

21) If  $m\angle 2 = 42^\circ$  and  $\angle 1$  and  $\angle 2$  are complementary angles. Find  $m\angle 1$

22) If  $m\angle 1 = 92^\circ$  and  $\angle 1$  and  $\angle 2$  form a linear pair. Find  $m\angle 2$ .



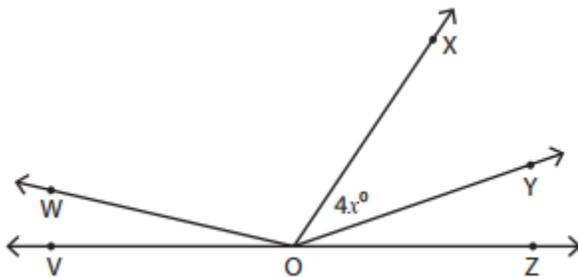
23) Use the given information to find the unknown angles.



Given:  $\angle BOC = 60^\circ$ ,  $\angle DOE = 125^\circ$ ,  $\angle AOD = 160^\circ$ .

Find:  $\angle COD = \underline{\hspace{2cm}}$ ,  $\angle BOE = \underline{\hspace{2cm}}$ ,  $\angle AOB = \underline{\hspace{2cm}}$ .

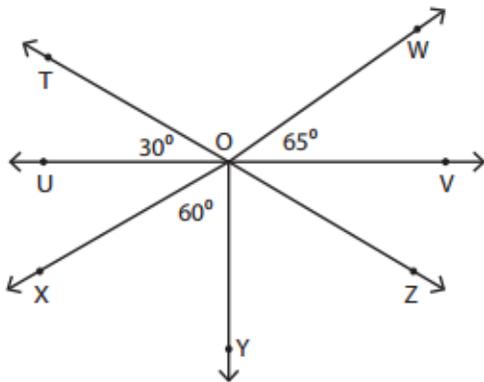
24) Using the given information, find the value of  $x$  and the unknown angle in each problem.



Given:  $\angle WOX = 110^\circ$ ,  $\angle YOZ = 20^\circ$ ,  $\angle VOW = 14^\circ$

Find:  $x = \underline{\hspace{2cm}}$ ,  $\angle XOY = \underline{\hspace{2cm}}$

25) Use the following diagram to solve:



- Name the angles adjacent to  $60^\circ$ .
- Find  $m\angle TOW$ .
- $\overleftrightarrow{UV}$  and  $\overleftrightarrow{TZ}$  intersect at  $O$ . Find  $m\angle ZOV$ .
- Name the angle vertical to the  $30^\circ$  angle.