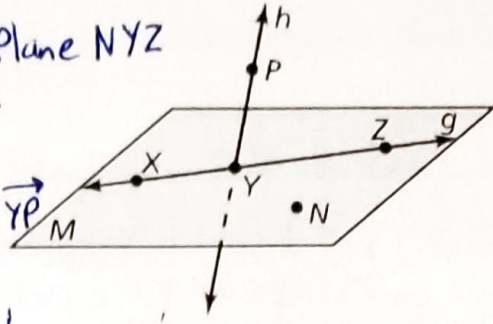


Use the diagram.

1. Give another name for plane  $M$ . *Plane  $NXY$  or Plane  $NXZ$  or Plane  $NYZ$*
2. Name a line in the plane.  *$\overleftrightarrow{XZ}$ ,  $\overleftrightarrow{XY}$ ,  $\overleftrightarrow{ZY}$  line*
3. Name a line intersecting the plane.  *$\overleftrightarrow{PY}$ , line  $h$*
4. Name two rays.  *$\overrightarrow{XY}$ ,  $\overrightarrow{YZ}$ ,  $\overrightarrow{XZ}$ ,  $\overrightarrow{ZY}$ ,  $\overrightarrow{ZX}$ ,  $\overrightarrow{YZ}$ ,  $\overrightarrow{PY}$ ,  $\overrightarrow{YP}$*
5. Name a pair of opposite rays.  *$\overrightarrow{YX}$  and  $\overrightarrow{YZ}$*
6. Name a point not in plane  $M$ .  *$P$*

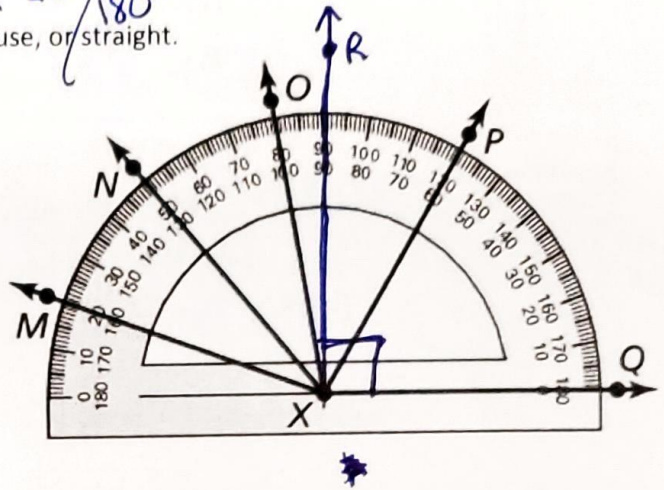
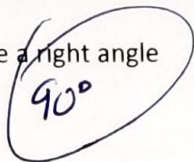


7.) Find each angle measure. Then classify each as acute, right, obtuse, or straight.

8.)  $m\angle MXQ = 160^\circ$  obtuse

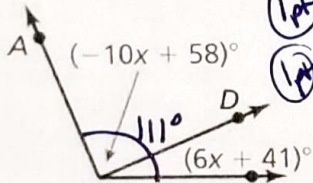
9.)  $m\angle OXP = 40^\circ$  acute  
 $100^\circ - 60^\circ$

10.) Draw a ray called  $XR$  that would make a right angle



11.) Find  $m\angle ABD$  and  $m\angle CBD$ .

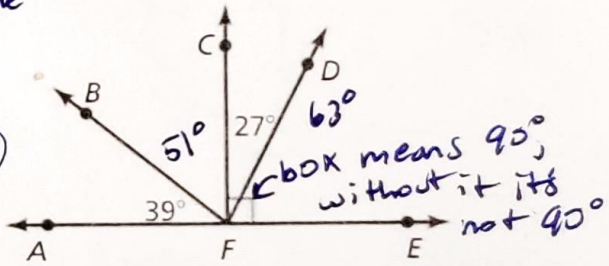
$m\angle ABC = 111^\circ$



*Plug in x value to find angle*  
 1pt  $m\angle ABD = -10(-3) + 58 = 30 + 58 = 88^\circ$   
 1pt  $m\angle CBD = 6(-3) + 41 = -18 + 41 = 23^\circ$

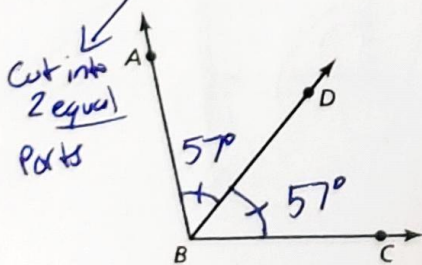
*Whole = Part + Part*  
 1pt  $m\angle ABC = m\angle ABD + m\angle CBD$   
 1pt  $111 = -10x + 58 + 6x + 41$   
 $111 = -4x + 99$   
 $-99 = -4x - 99$   
 $12 = -4x$   
 $\frac{12}{-4} = \frac{-4x}{-4}$   
 $x = -3$  1pt

12.) In the diagram, find  $m\angle DFE$ ,  $m\angle BFC$ , and  $m\angle BFE$ .



*box means 90, without it it's not 90*  
 $m\angle CFE = m\angle CFD + m\angle DFE$   
 $90 = 27 + m\angle DFE$   
 $m\angle DFE = 63^\circ$   
 $m\angle AFE = 63^\circ + 27^\circ + m\angle BFC + 39^\circ$   
 $180^\circ = 129^\circ + m\angle BFC$   
 $m\angle BFC = 51^\circ$   
 $m\angle BFE = 90 + 51 = 141^\circ$

13.)  $\overline{BD}$  bisects  $\angle ABC$  and  $m\angle ABD = 57^\circ$ . Find  $m\angle DBC$  and  $m\angle ABC$ .



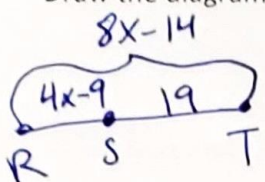
*Cut into 2 equal parts*  
 $m\angle ABD = m\angle DBC$   
 $57^\circ = m\angle DBC$   
 $m\angle ABC = m\angle ABD + m\angle DBC$   
 $m\angle ABC = 57^\circ + 57^\circ = 114^\circ$

$m\angle DBC = 57^\circ$

$m\angle ABC = 114^\circ$

- 14.) Point  $S$  is between points  $R$  and  $T$  on  $\overline{RT}$ . Use the information to write an equation. Then solve the equation and find  $RS$ ,  $ST$ , and  $RT$ .

Draw the diagram!  $RS = 4x - 9$   $RT = 8x - 14$   $ST = 19$



1pt  $RT = RS + ST$   
 2pt  $8x - 14 = 4x - 9 + 19$   
 $8x - 14 = 4x + 10$   
 $-4x \quad -4x$   
 $4x - 14 = 10$   
 $4x + 14 = 24$   
 $x = 6$  (1pt)

$RS = 4(6) - 9 = 15$  (1pt)  
 $RT = 8(6) - 14 = 34$  (1pt)

- 15.) Write the converse, inverse, and contrapositive of the following conditional:

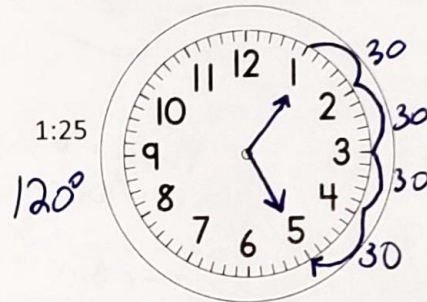
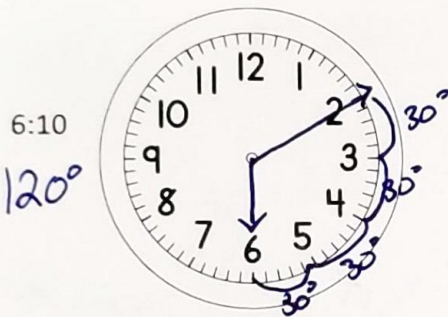
If the pizza has anchovies, then Mrs. Theo is not happy.

Switch order  
 Converse: If Mrs. Theo is not happy, then the pizza has anchovies

Same order  
 Negate with Not  
 Inverse: If the pizza does not have anchovies, then Mrs. Theo is happy

Contrapositive: both  
 If Mrs. Theo is happy, then the pizza does not have anchovies.

- 16.) Find the angle formed by the hands of a clock at following times.



- 17.) Determine the union ( $\cup$ ) or intersection ( $\cap$ ) of the following statements.

a.)  $\overrightarrow{NB} \cup \overrightarrow{NU} = \angle BNU$  two rays that share an endpoint is an angle  
 Union (if  $\cap \rightarrow \angle$ )

b.)  $\overline{BN} \cap \overline{CA} = A$   
 Intersection

c.)  $\angle UBC \cap \angle NBU = \angle UBC$  (if  $\cup \rightarrow \angle NBU$ )  
 Intersection

d.)  $\overrightarrow{BR} \cup \overrightarrow{RU} = \overrightarrow{BR}$  (if  $\cap \overline{RU}$ )  
 Union

