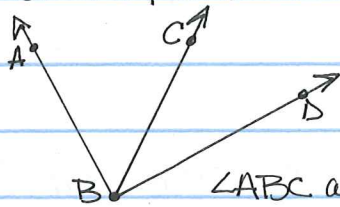


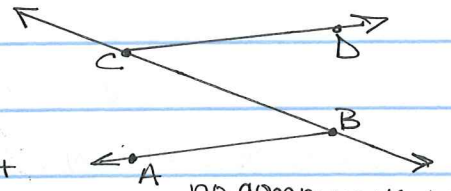
# 1-5 Angle Relationships

Pairs of angles:

Adjacent angles = two angles that lie next to each, share a common side and a vertex.

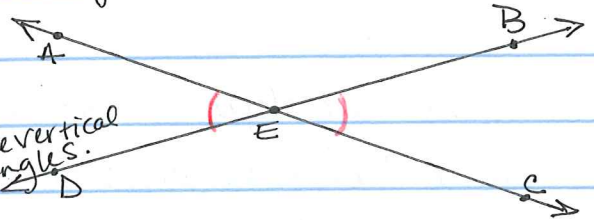


$\angle ABC$  and  $\angle CBD$  are adjacent  
 $\angle ABC$  and  $\angle ABD$  are not



no common vertex  
 $\angle DCB$  &  $\angle CBA$  are not adjacent

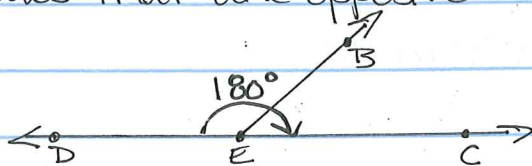
Vertical angles = two nonadjacent formed two intersecting lines.



$\angle AED$  and  $\angle BEC$  are vertical angles.  
 $\angle AEB$  and  $\angle DEC$  are vertical angles.

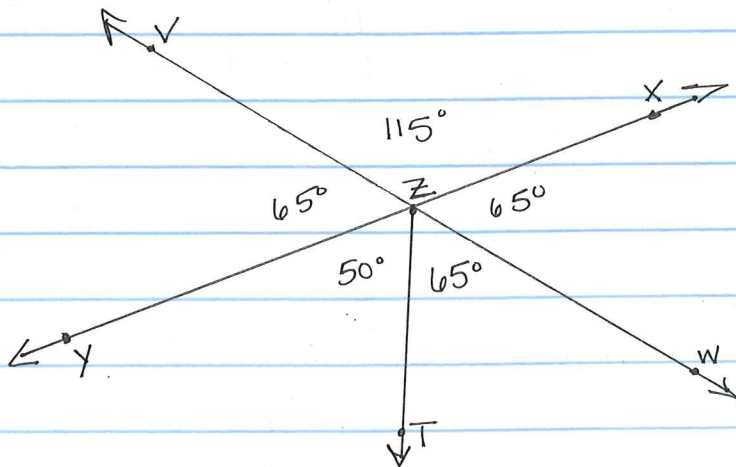
Vertical angles are congruent!

Linear pair = adjacent angles with noncommon sides that are opposite rays.



$\angle DEB$  and  $\angle BEC$  are a linear pair.

ex:

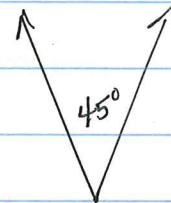
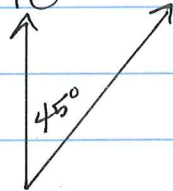
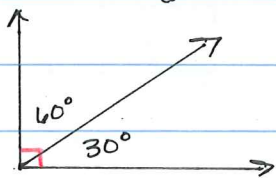


1) two obtuse vertical angles  
 $\angle VZX$  and  $\angle YZW$

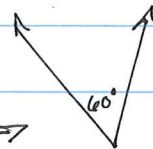
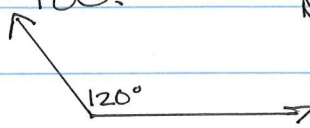
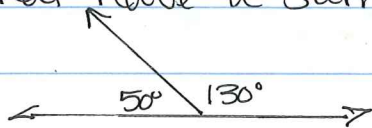
2) two adjacent acute angles  
 $\angle VZY$  and  $\angle YZT$   
 $\angle YZT$  and  $\angle TZW$   
 $\angle TZW$  and  $\angle WZX$

do Geometry Lab on page 41

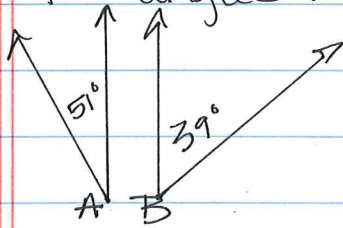
Complementary angles = two angles with measures that have a sum of  $90^\circ$



Supplementary angles = two angles with measures that have a sum of  $180^\circ$



ex: Find the measures of two complementary angles if the difference in the measures of the two angles is 12.



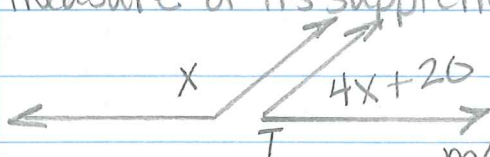
$$\begin{aligned} m\angle A + m\angle B &= 90 && \text{(systems of)} \\ + m\angle A - m\angle B &= 12 && \text{eq.} \\ \hline 2(m\angle A) &= 102 \\ \hline m\angle A &= 51 \end{aligned}$$

$$m\angle A + m\angle B = 90$$

$$\begin{array}{r} 51 + m\angle B = 90 \\ -51 \phantom{+} \\ \hline m\angle B = 39 \end{array}$$

$$\boxed{m\angle B = 39}$$

ex: Find the  $m\angle T$  if  $m\angle T$  is 20 more than four times the measure of its supplement.



$$m\angle T = 4(32) + 20$$

$$m\angle T = 128 + 20$$

$$\boxed{m\angle T = 148}$$

$$x + 4x + 20 = 180$$

$$5x + 20 = 180$$

$$\begin{array}{r} -20 \phantom{=} \\ -20 \phantom{=} \\ \hline 5x = 160 \end{array}$$

$$5x = 160$$

$$x = 32$$