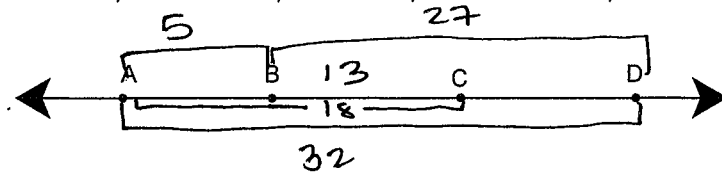


**GAT Review – Angles, Lines, Rays,  
Segments and Polygons**

Name KEY  
class \_\_\_\_\_ date \_\_\_\_\_

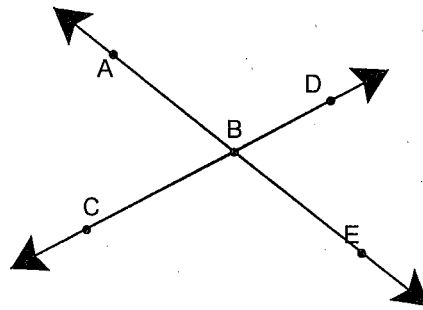
1. On the number line below, if  $AC = 18$ ,  $BD = 27$ , and  $AD = 32$ , find  $BC$



or  $BC + AB = AC$   
 $x + 5 = 18$   
 $x = 13$

2. Use the following drawing:

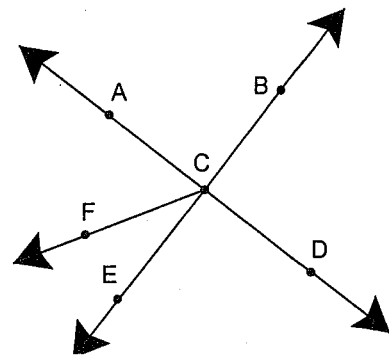
- A.  $\overrightarrow{AB} \cap \overrightarrow{EA} = \overrightarrow{AE}$
- B.  $\overrightarrow{AB} \cup \overrightarrow{EA} = \overrightarrow{AE}$
- C.  $\overrightarrow{BC} \cap \overrightarrow{BE} = \underline{B}$
- D.  $\overrightarrow{BC} \cup \overrightarrow{BE} = \underline{\sphericalangle CBE}$



3. Using the diagram, give an example of:

- A. An obtuse angle  $\sphericalangle FCB$
- B. A linear pair  $\sphericalangle FCE$  &  $\sphericalangle FCB$
- C. A right angle  $\sphericalangle ACB$
- D. Vertical angles  $\sphericalangle ACB$  &  $\sphericalangle ECD$
- E. Perpendicular lines  $\overleftrightarrow{AD} \perp \overleftrightarrow{BE}$
- F. Supplementary angles same as B.
- G. Adjacent angles same as B.
- I. Complementary angles  $\sphericalangle FCE$  &  $\sphericalangle FCA$

$\overleftrightarrow{AD} \perp \overleftrightarrow{BE}$



4. Two angles whose sum is 90 degrees are called complimentary angles

5. Rays, segments, and lines which intersect at right angles are called

perpendicular

6. Two non adjacent angles formed by two intersecting lines are called vertical angles (which are  $\cong$ )

10. Draw a diagram of the condition  
Set up the needed equations and solve  
Find the measures of the missing angles

Angle ABE and angle EBC form a linear pair.

$$123^\circ m\angle ABE = 7(x-3) + 3(2x-4) = \underline{7x} - \underline{21} + \underline{6x} - \underline{12} = 13x - 33$$

$$57^\circ m\angle EBC = 19 - 2(5-2x) = \underline{19} - \underline{10} + 4x = 9 + 4x$$

$$\rightarrow m\angle ABE + m\angle EBC = 180$$

$$\underline{13x} - \underline{33} + \underline{9} + \underline{4x} = 180$$

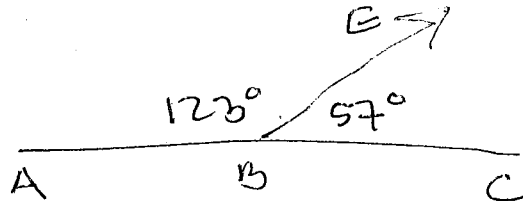
$$17x - 24 = 180$$

$$\quad +24 \quad +24$$

$$17x = 204$$

$$\underline{17} \quad \underline{17}$$

$$x = 12$$



Angle ABE and angle DBC form vertical angles and angle ABD and angle ABE are supplementary;. Set up the diagram and label it correctly, find the measures of the angles by showing all of your algebra work

$$116^\circ m\angle ABE = 3(5x-6y) + 16$$

$$= 15x - 18y + 16$$

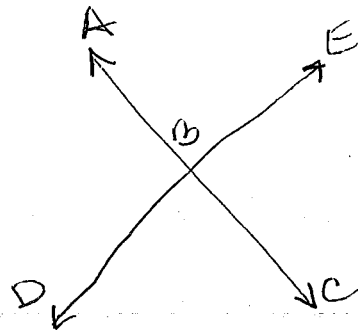
$$64^\circ m\angle DBC = 8 - 2(3y-5x)$$

$$= 8 - 6y + 10x$$

$$116^\circ m\angle ABD = 10(4x-3y) - 84$$

$$= 40x - 30y - 84$$

$$40(8)$$



$$m\angle ABE + m\angle ABD = 180$$

$$\underline{15x} - \underline{18y} + \underline{16} + \underline{40x} - \underline{30y} - \underline{84} = 180$$

$$m\angle ABE = m\angle DBC$$

$$15x - 18y + 16 = 8 - 6y + 10x$$

$$-10x + 6y - 16 \quad -16 + 6y - 10x$$

$$55x - 48y - 68 = 180$$

$$55x - 48y = 248$$

$$-55x + 32y = +88$$

$$(-11)(5x - 12y = -8)$$

$$84y = 336$$

$$y = 4$$

$$5x - 12(4) = -8$$

$$5x = 40$$

$$x = 8$$