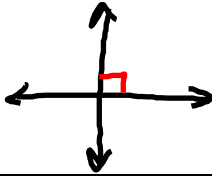
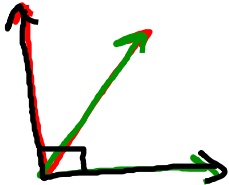
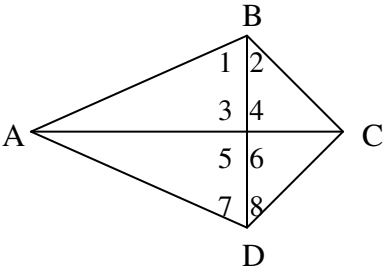


Vocabulary Sheet for Lesson 2-5

Definition	Diagram / Notes
<u>Perpendicular lines:</u> Two lines that intersect to form right angles	
<u>Theorem 2-4:</u> If two lines are perpendicular, then they form congruent adjacent angles	
<u>Theorem 2-5:</u> (converse of theorem 2-4) If two lines form congruent adjacent angles, then they are perpendicular	
<u>Theorem 2-6:</u> If the exterior sides of two adjacent acute angles are perpendicular, then the angles are complementary	
<u>Example 1:</u> Name the definition or theorem that justifies each statement about the given diagram a) If $\overline{AB} \perp \overline{BC}$, then $\angle ABC$ is a right angle <i>perpendicular to</i> <i>def. of perpendicular lines</i> b) If $\overline{BD} \perp \overline{AC}$, then $m\angle 3 = m\angle 4$ <i>Theorem 2-4</i> c) If $\overline{DC} \perp \overline{DA}$, then $\angle 7$ and $\angle 8$ are complementary <i>Theorem 2-6</i>	

d) If $\angle 7$ and $\angle 8$ are complementary,
 d) If $\angle 7$ and $\angle 8$ are complementary,
 then $m\angle 7 + m\angle 8 = 90$

def. of comp. \angle s

e) If $\angle 4$ is congruent to $\angle 6$, then
 $\overline{AC} \perp \overline{BD}$

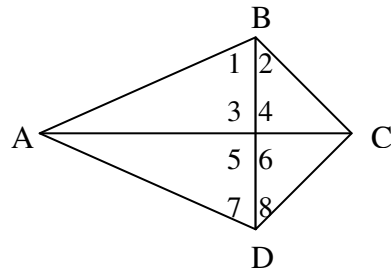
Theorem 2-5

f) $\angle 4$ is congruent to $\angle 5$

def. of vertical \angle s

g) If $\angle ADC$ is a right angle, then
 $m\angle ADC = 90$

def. of a right \angle



Example 2:

Given that ray $\overrightarrow{BE} \perp$ line AC , ray $\overrightarrow{BD} \perp$ ray \overrightarrow{BF} . Find the value of x .

a) $m\angle 2 = 2x + 10$, $m\angle 3 = 40$

$$2x + 10 + 40 = 90$$

$$2x = 40$$

$$x = 20$$

b) $m\angle 1 = 2x$, $m\angle 2 = 2x + 10$,
 $m\angle 3 = 3x - 20$, $m\angle 4 = 3x - 10$

$$2x + 2x + 10 + 3x - 20 + 3x - 10 = 180$$

$$10x - 20 = 180$$

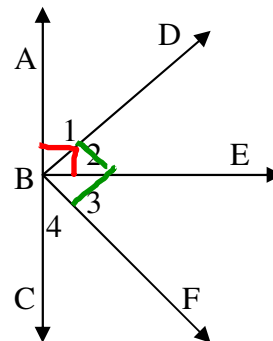
$$10x = 200 \quad x = 20$$

c) $m\angle 1 = 3x + 1$, $m\angle 2 = 4x + 5$,
 $m\angle 3 = 2x + 13$

$$3x + 1 + 4x + 5 = 90$$

$$7x + 6 = 90$$

$$7x = 84$$



$$x = 12$$

