Name _____
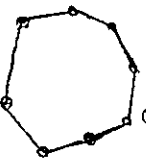
1) Draw each of the following:
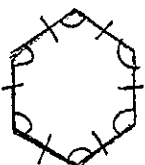
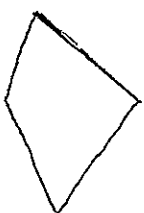a. regular pentagon

b. nonagon

c. regular hexagon

d. quadrilateral

2) Find the measure of each angle:

$m\angle 1 = \underline{90}$

$m\angle 2 = \underline{29}$

$m\angle 3 = \underline{61}$

$m\angle 4 = \underline{52}$

$m\angle 5 = \underline{38}$

$m\angle 1 = \underline{108}$

$m\angle 2 = \underline{40}$

$m\angle 3 = \underline{72}$

$m\angle 4 = \underline{72}$

$m\angle 5 = \underline{36}$

ABCDE is a regular pentagon.

38   5
29°
38°   52   4
90   3
524
292

E   D
1   2   68°
A   B   3   4   C   5   F
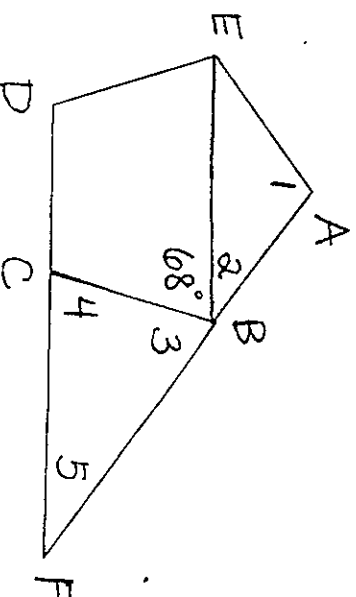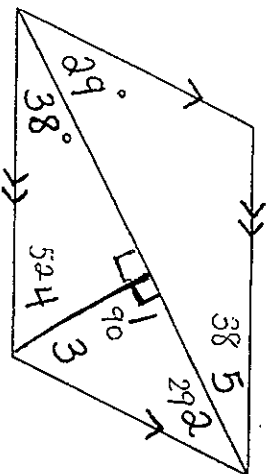
4) Draw a concave polygon.

5) Find the measure of an interior angle of a regular 14-gon.

$$\frac{(n-2)180}{n} = \frac{(14-2)180}{14} = \boxed{154.3°}$$

6) Each interior angle of a regular polygon has a measure of 160. How many sides does the polygon have?

each ext angle then = $180-160 = 20$

$$\frac{360}{20} = \boxed{18 \text{ sides}}$$

7) Four angles of a hexagon have measures 113, 82, 169, and 76. One of the other angles is three times the measure of the last angle. Find the measures of the other two interior angles.

$$113 + 82 + 169 + 76 = 440$$

$$720 - 440 = 280$$

$$x + 3x = 280$$
$$4x = 280$$
$$x = 70$$

angles = $\boxed{70, 210}$

8) Find the <u>values of x and y.</u>

Solve! System!

$$3x - y = 120$$

$$80°$$
$$2x + y - 5 = 100$$
$$2x + y = 105$$
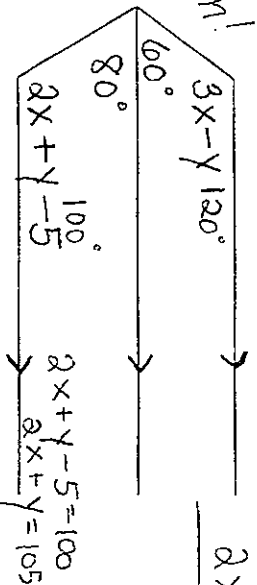
$$2x + y = 105$$

$$3x - y = 120$$
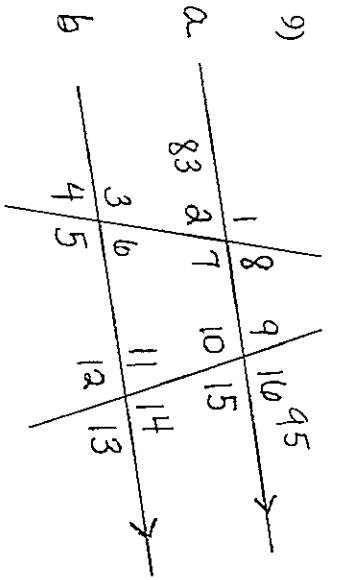$$2x + y = 105$$
$$5x = 225$$
$$\boxed{x = 45}$$

$$2(45) + y = 105$$
$$90 + y = 105$$
$$\boxed{y = 15}$$
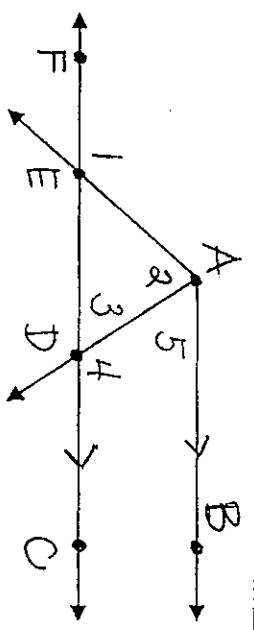
$$x = \underline{45}$$
$$y = \underline{15}$$

9)

Given: $m\angle 2 = 83$
$m\angle 16 = 95$

$a \parallel b$

$m\angle 8 = 83$
$m\angle 6 = 83$
$m\angle 3 = 97$
$m\angle 11 = 85$
$m\angle 15 = 85$
$m\angle 14 = 95$

10) Given: $\overrightarrow{AB} \parallel \overleftrightarrow{FC}$

Prove: $m\angle 1 = m\angle 2 + m\angle 5$

Statements	Reasons
1. $\overrightarrow{AB} \parallel \overleftrightarrow{FC}$	1. Given
2. $\angle 5 \cong \angle 3$	2. || lines → alt int ∠s ≅
3. $m\angle 5 = m\angle 3$	3. Def ≅
4. $m\angle 1 = m\angle 2 + m\angle 3$	4. Exterior Ang Thm
5. $m\angle 1 = m\angle 2 + m\angle 5$	5. Substitution Prop