Name _____ Date _____ Class # _____ Block _____

Constructions 3.7

Triangle? What kind?

Goals

By thinking about the lengths of segments I can determine if a triangle:

- is possible
- will be scalene, isosceles, or equilateral determine if will be acute, right, or obtuse

As well as decide where the smallest and largest angle must be.

Complete the following. Draw an example for each.

1. Given three segments, if the sum of the lengths of the _____ two segments is _____ than the length of the _____ segment, then a triangle can be made.

2. In a triangle the _____ side is opposite the _____ angle.
   In a triangle the _____ side is opposite the _____ angle.

3. Suppose that the lengths of three sides of a triangle are *a*, *b*, and *c*. Then

   a. If ___ ◯ ___ + ___, then the triangle is right.

   b. If ___ ◯ ___ + ___, then the triangle is acute.

   c. If ___ ◯ ___ + ___, then the triangle is obtuse.

Name _____ Date _____ Class # _____ Block _____

4. Determine if the segments with the given lengths can make a triangle. If they can, write the corresponding letters in the blanks below.

1, 2, 3 A	3, 5, 4 J	11, 9, 3 U	25, 12, 11 N	2, 2, 3 L
7, 9, 12 I	14, 7, 7 N	3, 9, 7 A	12, 10, 4 M	6, 15, 7 E
8, 3, 3 B	8, 15, 8 O	16, 11, 7 R	1, 18, 24 O	11, 22, 30 G
6 .12. 20 L	6, 8, 12 A	14, 36, 16 I	22, 13, 9 K	13, 15, 25 N

Who was the first successful woman architect?

__ __ __ __ __ __ __ __ __ __ __

5. Determine whether the following lengths create an right, acute, or obtuse triangle. Check the appropriate box and place the letter in the blanks below to reveal Kirkpatrick Macmillian's invention.

	lengths	right	acute	obtuse	no triangle
1	11, 11, 15	O	T	B	R
2	1, 2, 3	N	A	E	H
3	3. 4. 5	E	N	D	K
4	7, 8, 12	R	L	B	P
5	5, 12, 13	I	Z	Y	F
6	6, 7, 8	D	C	I	A
7	5, 9, 11	E	P	Y	N
8	4, 5, 8	P	N	C	R
9	9, 12, 15	L	S	E	O
10	5, 5, 5	N	E	D	R

Invention

__ __ __

__ __ __ __ __ __ __

6. Fill in the blank with a length for the side so that the correct triangle could be made.

a. ___, 5, 8 Acute	b. 7, ___, 12 Obtuse	c. ___, 7, 5 Right	d. 3, 11, ___ Acute
e. ___, 8, 12 Right	f. 9, 7, ___ Obtuse	g. x, x+2, ___ Right	h. x, 3x, ___ Obtuse