M9 - 10.4 - Triangles/Similar/Congruent Notes

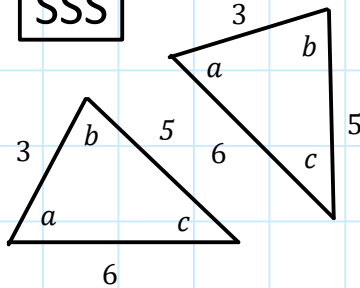**Congruent (Equal) Triangle's**   Triangles are Congruent if: Like : Like

Side Side Side

IN ORDER!

Side Angle Side

SSS

$$\angle a = \angle a$$
$$\angle b = \angle b$$
$$\angle c = \angle c$$

3
b
a
b
5
5
3
6
c
a
c
6

A Side then a Side then a Side

SAS

2
b
a
a
b
2
60° c
c 60°
1
1
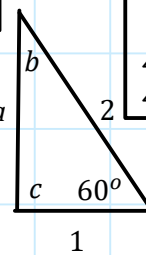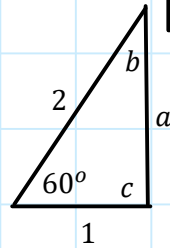
$$a = a$$
$$\angle b = \angle b$$
$$\angle c = \angle c$$

A Side then an Angle then a Side

Angle Side Angle

ASA

70° 5   5 70°
a
60° 60° a
b
c   c
b
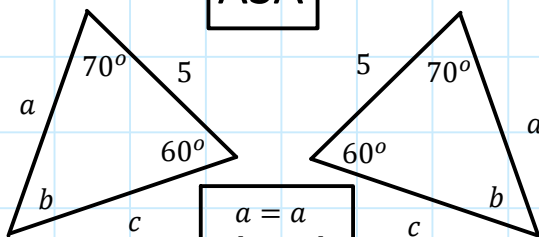
$$a = a$$
$$\angle b = \angle b$$
$$c = c$$

An Angle then a Side then an Angle.

Angle Angle Side

AAS

c   c
80° 80°
a   b   b   a
40° 40°
10   10
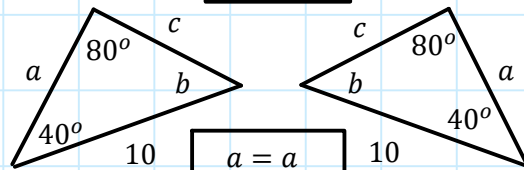
$$a = a$$
$$\angle b = \angle b$$
$$c = c$$

An Angle then an Angle then a Side.

Hypotenuse Leg

HL

5   b   b   5
3   3
a   a
c   c
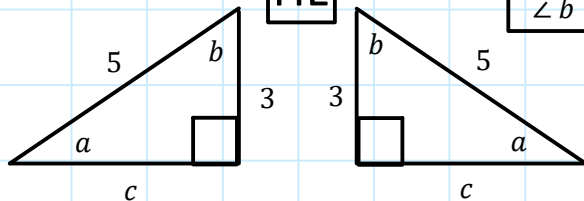
A Hypotenuse and a Leg

$$c = c$$
$$\angle a = \angle a$$
$$\angle b = \angle b$$

Angle Side Side

ASS

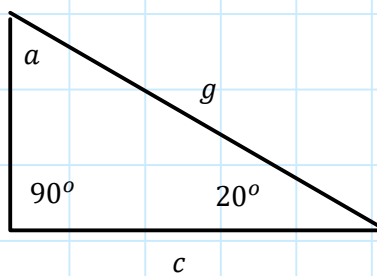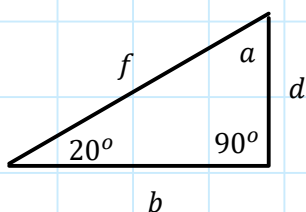5   5
4   4
30° 30°
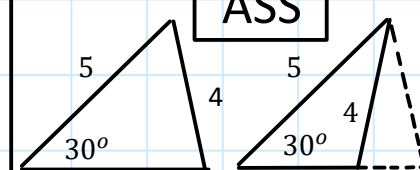
Neither!

Unless they are!

Similar Triangles

Equal Fractions

Angle Angle Angle

$$\frac{b}{c} = \frac{d}{e} = \frac{f}{g}$$

Can be used for all Congruent Triangles as well (for sides*)!

AAA

f   a   e
d
20° 90°
b

a
g
90° 20°
c

3rd Angle in a Triangle
$$\angle a = \angle a$$
$$180^o - 90^o - 20^o = 70^o$$