M9

Similar Triangles – Part 1

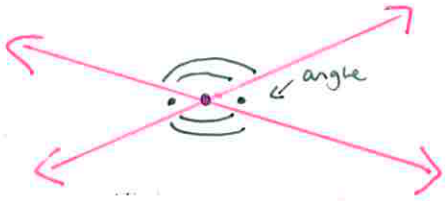
6.4

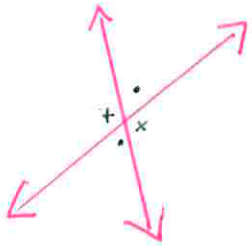
Geometry Terms and Symbols

Symbol	Meaning
~	Similar = same shape and different size. Similar = corresponding angles are the same size and corresponding sides are scaled by the same SF.
≅	Congruent = same shape and same size. Congruent = corresponding angles are the same and corresponding sides are the same.
//	Parallel = never intersecting and with the same slope.
⊥	Perpendicular = meeting or intersecting at 90° angle.

Vertical Angles

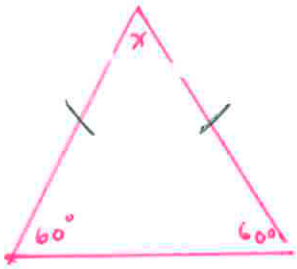
- Vertical angles are formed when two lines intersect.
- Vertical angles are always congruent.
- Vertical angles share a vertex (a point) but nothing else.





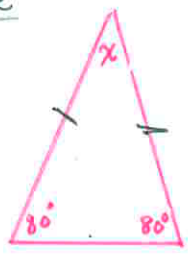
Sum of All Interior Angles in a Triangle drawn in 2D is always 180°

Isosceles Triangle



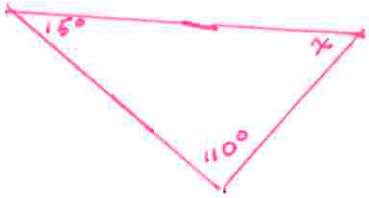
$x = 180° - 60° - 60°$

$x = 60°$



$x = 180° - 80° - 80°$

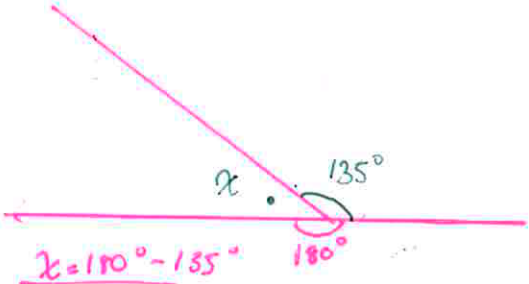
$x = 20°$



$x = 180° - 15° - 110°$

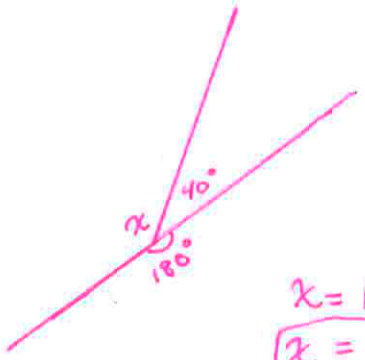
$x = 55°$

Supplementary Angles = 2 angles that add up to 180°



$x = 180° - 135°$

$x = 45°$



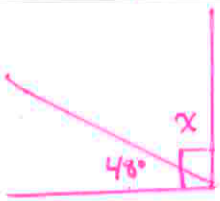
$x = 180° - 40°$

$x = 140°$

Complementary Angles = 2 angles that add up to 90°

$x = 90° - 68°$

$x = 22°$



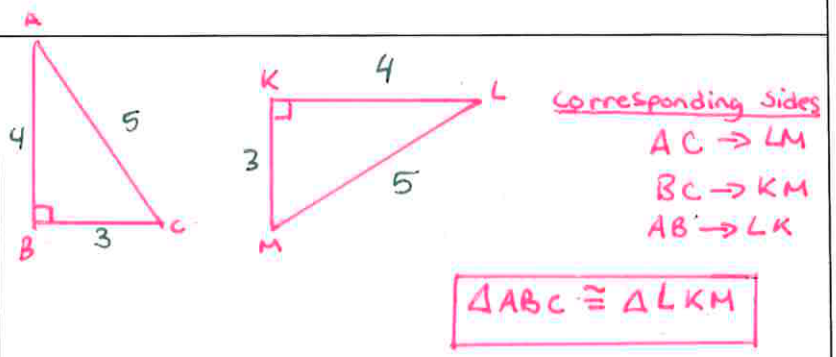
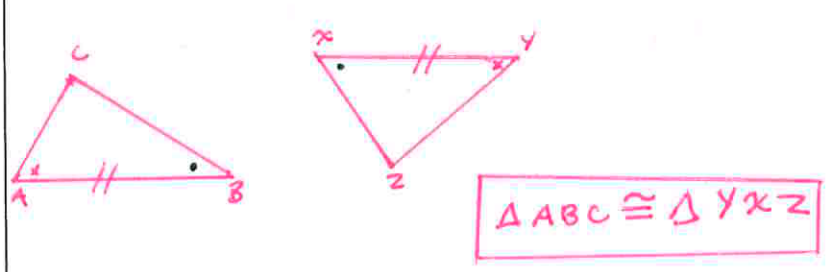
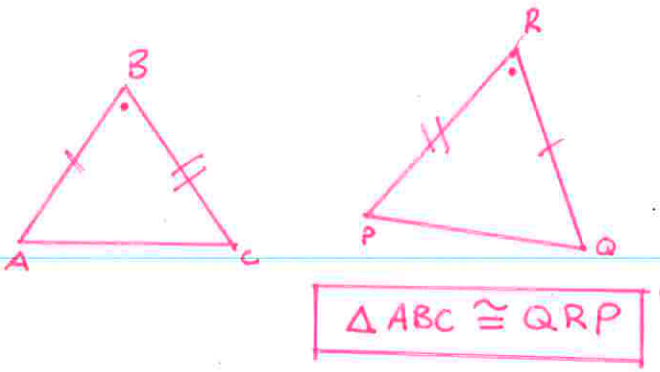
$x = 90° - 48°$

$x = 42°$

Angle	Diagram	Property
Right		90°
Straight		180°
Acute		$0° < x < 90°$ "more than 0°, less than 90°."
Obtuse		$90° < x < 180°$ "more than 90°, less than 180°"
Reflex		$180° < x < 360°$ more than 180°, less than 360°

Congruent Triangles

- Congruent triangles have the same shape and the same size
- **You can determine if given triangles are congruent in 3 different ways.** The way you use depends on the information known about the triangles.

	Known Information	Example
SSS	side-side-side 3 pairs of corresponding sides are the same size	
ASA	angle-side-angle 2 pairs of corresponding angles and 1 pair of corresponding sides are congruent	
SAS	side-angle-side 1 pair of corresponding angles and 2 pairs of corresponding sides are congruent	

≅ → Congrugent
↓
The Same
(Same Size, Same Shape)