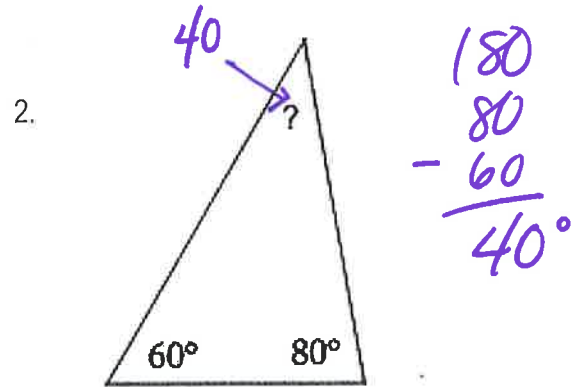
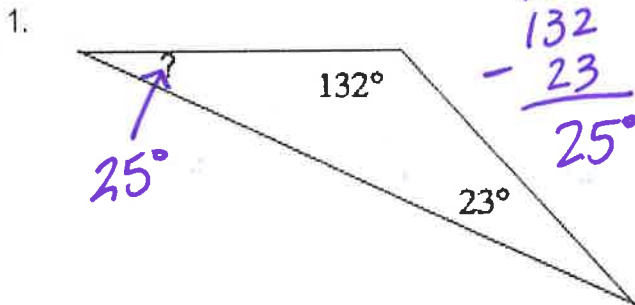


Triangles

Number of Sides	Number of Angles	Sum of Measure of Angles
<u>3</u>	<u>3</u>	<u>180°</u>

Find the missing measure:



Triangle Inequality Theorem

Side Lengths	Diagram	Triangle?
2 in 3 in 6 in		Yes or <u>No</u> because $2+3$ is not > 6
2 in 2 in 4 in		Yes or <u>No</u> because $2+2$ is not > 4
4 in 5 in 6 in		<u>Yes</u> or No

Triangle Inequality Theorem:

The sum of the lengths of any two sides of a triangle is greater than the length of the third side.

* It must work for all 3 side combinations.

Do the following side lengths make a triangle?

1 5, 6, 11

$$5 + 6 = 11$$

NO

2 11, 13, 20

$$11 + 13 > 20$$

and

$$13 + 20 > 11$$

and

$$11 + 20 > 13$$

YES

3 12, 8, 10

$$8 + 10 > 12$$

and

$$12 + 8 > 10$$

and

$$12 + 10 > 8$$

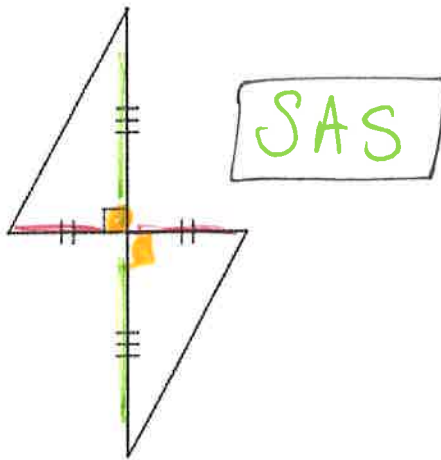
YES

Triangle Congruence Theorems

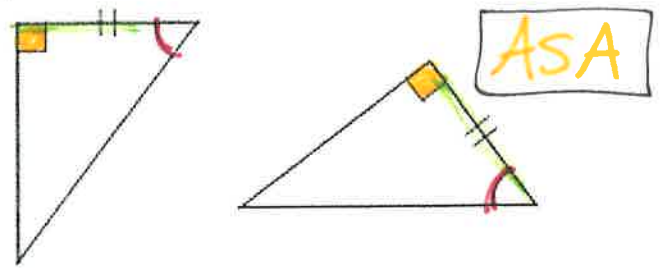
Theorem	Example
<p>SSS (side, side, side)</p>	<p>If <u>3</u> sides of one triangle are congruent to <u>3</u> sides of another, the triangles are <u>congruent</u>.</p> <p>$\triangle ABC \cong \triangle DEF$</p>
<p>SAS (side, angle, side)</p>	<p>If <u>2</u> sides and the <u>included</u> angle of one triangle are congruent to the <u>2</u> sides and <u>included</u> angle of another, the triangles are <u>congruent</u>.</p> <p>$\triangle HIJ \cong \triangle KLM$</p>
<p>ASA (angle, side, angle)</p>	<p>If <u>2</u> angles and the <u>included</u> side of one triangle are congruent to the <u>corresponding</u> parts of another, the triangles are <u>congruent</u>.</p> <p>$\triangle QRS \cong \triangle TUV$</p>
<p>AAS (angle, angle, side)</p>	<p>If <u>2</u> angles and the <u>NON-included</u> side of one triangle are congruent to the <u>corresponding</u> parts of another, the triangles are <u>congruent</u>.</p> <p>$\triangle GHI \cong \triangle JKL$</p>

Are the triangles congruent? If so, state the congruence theorem.

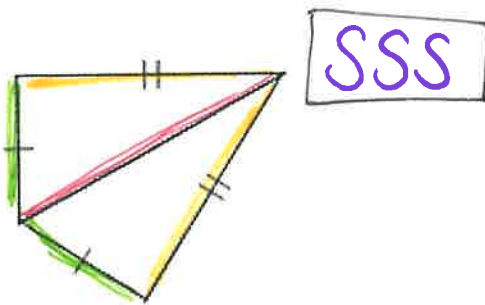
1.



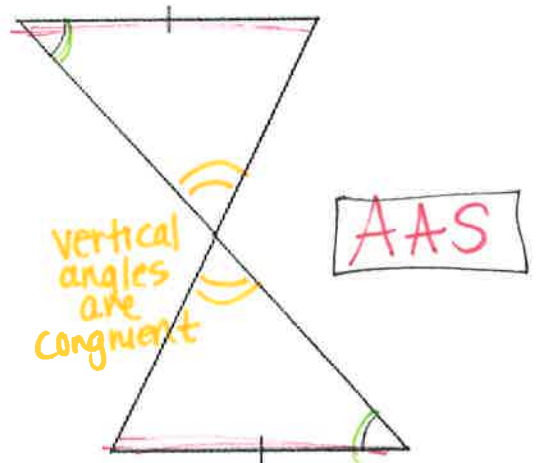
5.



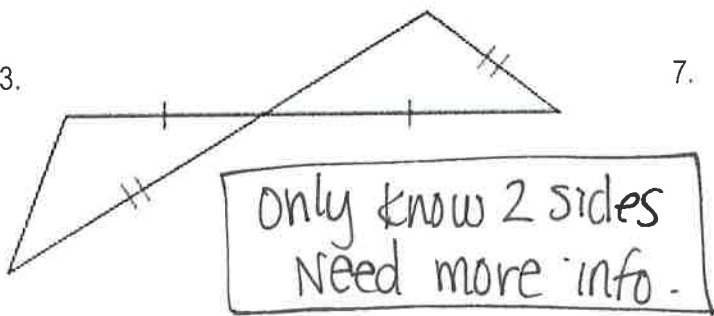
2.



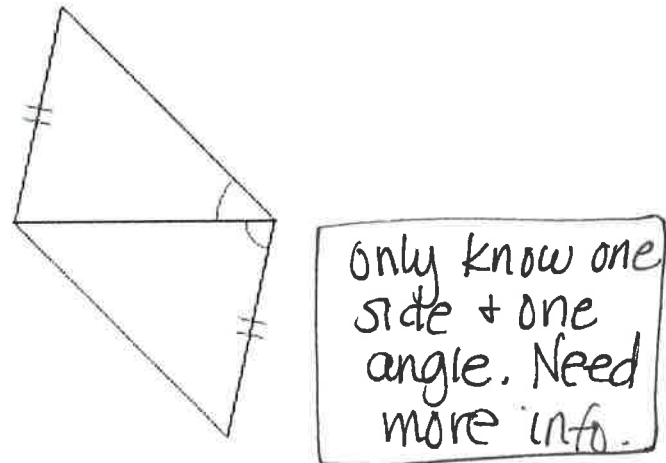
6.



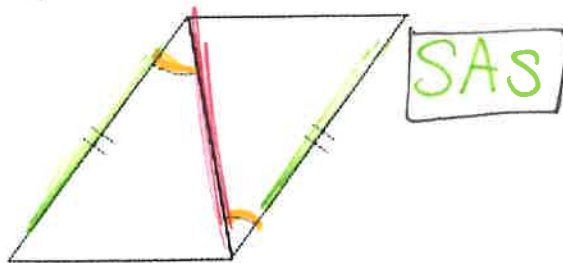
3.



7.



4.



8.

