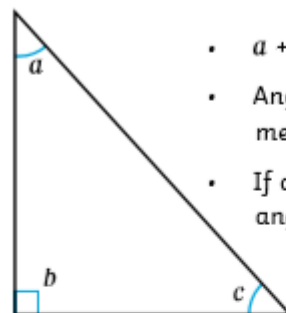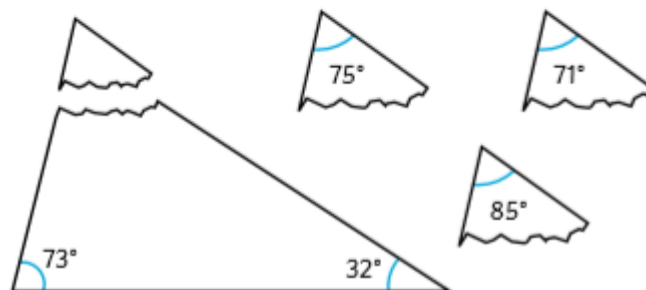**1)** Decide whether the statements about this triangle are true or false.
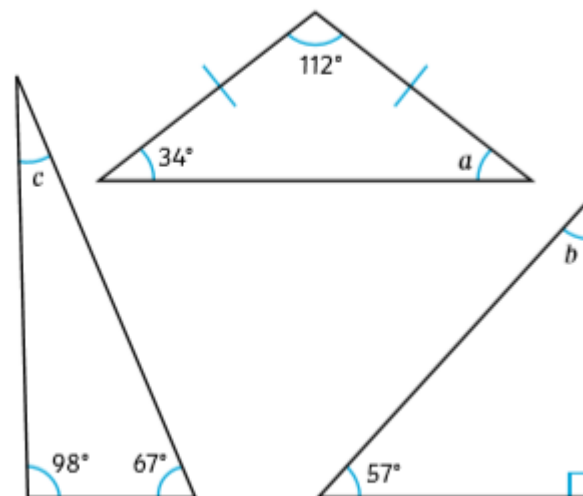

- $a + b + c =$ _____

- Angle a and angle c both measure 60°.

- If angle a measures 55°, angle c will measure 25°.

2) One of the corners is torn from this triangle. Circle the corner that shows the angle of the missing corner.
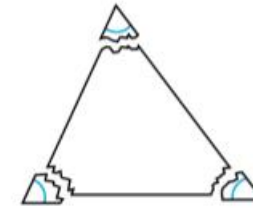

75°

71°

85°

73°

32°

3) Calculate the missing angles.

112°
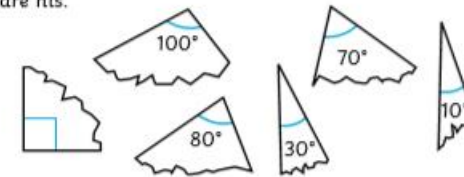
34°

c

a

98°   67°

57°

b

Impotant note: angles not drawn to scale, do not use a protractor.

2) The teacher has torn the corners off a triangle to demonstrate that they all add up to 180 degrees.


Tayo draws a different scalene triangle and tears off the corners but does not know which of the corners are his.

These children are trying to work out which three of the pieces could have come from Tayo's triangle. Explain whether you agree or disagree with each child's statement, giving reasons.

Monika

I think that any three of these pieces could have been from Tayo's triangle.

Robert
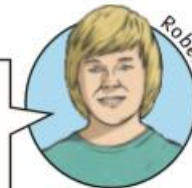
I disagree. I think that the pieces that measure 100°, 70° and 10° are the only three pieces that could have come from Tayo's triangle.

Impotant note: angles not drawn to scale, do not use a protractor.

1) Always, sometimes or never true? Prove it!

a) When this triangle is doubled in size, the interior angles also double in size.

b) A triangle can have two obtuse interior angles.

c) A triangle can have two acute interior angles.
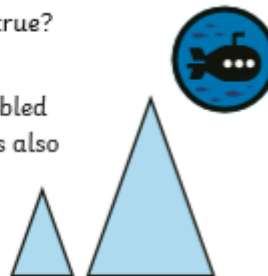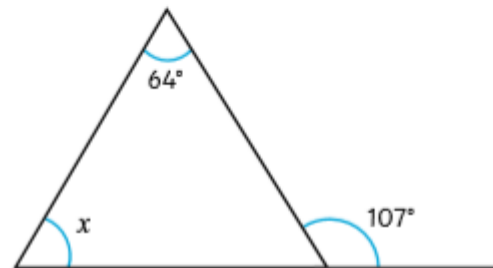
1) What are the missing angles?

All these angles are from a type of scalene triangle.
Angle c is a right angle.
Angle a is an acute angle.
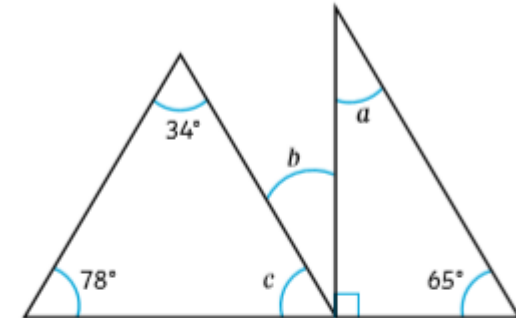Angle c is five time the size of angle b.

a = _____

b = _____

c = _____

2) Calculate the value of angle x.

64°

x 107°

3) Calculate the value of the missing angles. Use the box for your working out.

34°
a
b
78° c 65°

4) Investigate whether each of these children's statements are true or false. Explain your answer fully.

a) George says, "Each angle in my triangle is an odd number."

b) Freya says, "My triangle has one right angle, one obtuse angle and one acute angle."

George

Freya

Impotant note: angles not drawn to scale, do not use a protractor.

ANSWERS

1) . $a + b + c =$ ⌒_____

   True

   - Angle a and angle c both measure 60°.
     False

   - If angle a measures 55°, angle c will measure 25°.
     False, it will measure 35°.

2) **75° is the correct missing piece.**

3) $a = 34°$
   $b = 33°$
   $c = 15°$

1) a) Never true. The interior angles of a triangle will always sum to 180°. The length of the side does not affect the total of the interior angles.

   b) Never true. Two obtuse angles can not be the interior angles of a triangle.

   c) Always true. A triangle must always have at least two acute angles.

2) a) Monika is incorrect. For example, combining the pieces that measure 90°, 100° and 30° would give you 220° which is more than the angles of a triangle add to.

   b) Robert is incorrect. For example, the angles he has chosen do add to 180° but they are not the only options. 90° + 80° + 10° and 70° + 80° + 30° also sum to 180°.

1) $a = 72°$
   $b = 18°$
   $c = 90°$

2) Angle x measures 43°.

3) a) $a = 25°$
   b) $b = 22°$
   c) $c = 68°$

4) a) George's statement is false. The angles in a triangle add to 180°. 180 is an even number. Three odd numbers added together can not make an even number.

   b) Freya's statement is false. If Freya has one angle that is a right angle then the two remaining angles must add to make 90°. This means that the two remaining angles must be les than 90° each. An angle that is less than 90° is an acute angle.