## Reasoning and Problem Solving Step 6: Angles in a Triangle 2

## National Curriculum Objectives:

Mathematics Year 6: (6G4a) Find unknown angles in any triangles, quadrilaterals, and regular polygons
Mathematics Year 6: (6G2a) Compare and classify geometric shapes based on their properties and sizes

## Differentiation:

Questions 1, 4 and 7 (Reasoning)
Developing Determine whether a statement is true or false when recognising the value of angles in isosceles and right-angled triangles (when angles are given in multiples of 10). Expected Determine whether a statement is true or false when recognising the value of angles in isosceles and right-angled triangles (when angles are given in multiples of 5). Greater Depth Determine whether a statement is true or false when recognising and finding the value of angles in isosceles and right-angled triangles (when angles are given in exact degrees).

## Questions 2, 5 and 8 (Problem Solving)

Developing Match the description to correct triangle when identifying types of triangle and length of sides.
Expected Match the description to correct triangle when identifying and finding up to one missing angle and side markings in isosceles and right-angled triangles (when angles are in multiples of 5 ).
Greater Depth Match the description to correct triangle when identifying and finding up to two missing angles in isosceles and right-angled triangles (when angles are given in exact degrees).

Questions 3, 6 and 9 (Problem Solving)
Developing Complete the missing information and write a description of the triangle when finding one missing angle (where all angles are multiples of 10 ) in isosceles and rightangled triangles.
Expected Complete the missing information and write a description of the triangle when finding two missing angles in isosceles and right-angled triangles (when angles are in multiples of 5). .
Greater Depth Complete the missing information and write a description of the triangle when finding two missing angles in isosceles and right-angled triangles (when angles are given in exact degrees).

More Year 6 Properties of Shapes resources.

Did you like this resource? Don't forget to review it on our website.

1a. Anabelle says,

I have drawn an isosceles triangle. The angles are 60 degrees, 40 degrees and 80 degrees.

Could she be correct?
Explain why or why not.

2a. Match each triangle to the best description.

1. This triangle is an isosceles triangle.
2. This triangle is an equilateral triangle.
3. This triangle is a scalene triangle.


Triangles not drawn to scale.

3a. Fill in the missing details about this triangle.


This is an $\qquad$ triangle.

The missing angle is
$\qquad$ degrees.

## W

3b. Fill in the missing details about this triangle.

Triangles not drawn to scale.
2b. Match each triangle to the best description.

1. This triangle has three equal sides.
2. This triangle has two sides with equal lengths.
3. This has no matching sides.

Triangles not drawn to scale. PS
Could he be correct?
Explain why or why not.


4a. Nikki says,

I have drawn an isosceles triangle. The angles are 65 degrees, 45 degrees and 80 degrees.

Could she be correct?
Explain why or why not.

4b. Imran says,


Could he be correct?
Explain why or why not.

5a. Match each triangle to the best description.

1. This triangle has a missing 50 degree angle marking.
2. This triangle is missing equal length side markings.
3. This triangle is missing a 60 degree angle marking.


Triangles not drawn to scale.

6a. Fill in the missing details about this triangle.


This triangle has
$\qquad$ equal sides.

The missing angles are both $\qquad$ degrees.
$180=40+$ $\qquad$ $+$ $\qquad$ .
/50 This triangle has ___ equal sides.

The missing angles are both $\qquad$ degrees.
$180=50+$ $\qquad$
$\qquad$
6b. Fill in the missing details about this triangle.

Triangles not drawn to scale.
PS

5b. Match each triangle to the best description.

1. This triangle is missing all its markings for equal length sides.
2. The missing angle in this triangle is $\mathbf{4 0}$ degrees.
3. This triangle is missing a 75 degree angle.


- 

$\qquad$
$\qquad$

Triangles not drawn to scale.

7a. Usman says,

I have drawn an isosceles triangle.
The angles are 55 degrees, 55 degrees and 70 degrees. All three sides are the same length.

8a. Match each triangle to the best description.

1. The missing angles are both 60 degrees.
2. The missing angles are both 70 degrees.
3. This triangle is missing a 50 degree angle and a 65 degree marking.


Triangles not drawn to scale.

9a. Fill in the missing details about this triangle.


The missing angles are both $\qquad$ degrees.
$180=72+$ $\qquad$ $+$ $\qquad$
$72+$ $\qquad$ $+$ $\qquad$ $=180$
. 180

Could he be correct?
Explain why or why not.

7b. Aisha says,

I have drawn an isosceles triangle. The angles are 45 degrees, 45 degrees and 80 degrees. It has 2 equal length sides and one shorter side

Could she be correct?
Explain why or why not.


8b. Match each triangle to the best description.

1. This triangle is missing a 60 degree angle and equal side markings.
2. This triangle is missing a 75 degree angle and a 30 degree angle.
3. This triangle is missing a 70 degree angle and a 40 degree angle.


Triangles not drawn to scale.

9b. Fill in the missing details about this triangle.

## Reasoning and Problem Solving

## Angles in a Triangle 2

## Reasoning and Problem Solving

 Angles in a Triangle 2
## Developing

1b. Yes, because two of the angles are equal and all three angles total 180 degrees.
2b. 1C, 2A, 3B
3b. Isosceles, 40 degrees

## Expected

4b. Yes, because two of the angles are equal and the total of all three angles is 180 degrees.
5b. 1B, 2A, 3C
6b. $2,65,180=50+65+65$

## Greater Depth

7b. No, because the angles do not total 180 degrees.
8b. 1B, 2C, 3A
9b. $72,180=36+72+72,36+72+72=$ 180

