Angles in triangles and quadrilaterals: 10 practice questions

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Name: _____ Date: _____

Attempt all questions and show your working. Suggested time: 15 to 20 minutes.

Section A: Consolidating (Questions 1-4)

Question 1

Two angles of a triangle are 50° and 60°. Find the third angle.

Question 2

A right-angled triangle has one angle of 35°. Find the other two angles.

Question 3

What is the size of each angle in an equilateral triangle?

Question 4

A quadrilateral has angles of 90°, 80° and 100°. Find the fourth angle.

Section B: Standard (Questions 5-10)

Question 5

An isosceles triangle has an angle of 40° between its two equal sides. Find the size of each of the other two angles.

Question 6

In an isosceles triangle, the two equal angles are each 52°. Find the third angle.

Question 7

Explain one way to show that the three angles of any triangle add up to 180°. (You may describe tearing off the corners, or use a line drawn through one corner parallel to the opposite side.)

Question 8

Triangle ABC has angle A = 45° and angle B = 75°. Side BC is extended past C to a point D, forming the exterior angle angle ACD.

(a) Find angle ACB.

(b) Find the exterior angle angle ACD.

(c) What do you notice about angle ACD compared with angle A and angle B?

Question 9

Show that the interior angles of any quadrilateral add up to 360° by drawing one diagonal.

Question 10

A polygon can be split into triangles by drawing all the diagonals from one corner. Copy and complete the table.

Shape	Number of sides	Number of triangles	Interior angle sum
Triangle	3	1	180°
Quadrilateral	4	?	?
Pentagon	5	?	?
Hexagon	6	?	?
Octagon	8	?	?

Angles in triangles and quadrilaterals: answers

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Question 1

Answer: 70°

Question 2

Answer: 90° and 55°

Question 3

Answer: 60°

Question 4

Answer: 90° (360 - 270)

Question 5

Answer: 70° each ((180 - 40) ÷ 2)

Question 6

Answer: 76° (180 - 104)

Question 7

Answer: Tear off the three corners and place them side by side: they form a straight line, which is 180°. (Or: the parallel line makes two alternate angles equal to two of the triangle's angles, and the three angles at that corner lie on a straight line, so they add to 180°.)

Question 8

Answer: (a) 60° (b) 120° (c) angle ACD = angle A + angle B (45 + 75 = 120)

Question 9

Answer: A diagonal splits the quadrilateral into two triangles. The angles of the two triangles together make up the quadrilateral's angles, so the sum is 2 × 180° = 360°.

Question 10

Answer: Quadrilateral: 2, 360°; pentagon: 3, 540°; hexagon: 4, 720°; octagon: 6, 1080°