Properties of 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

Three angles of a quadrilateral are 85°, 95° and 110°. Find the fourth angle.

Question 2

What is the name of a quadrilateral with exactly one pair of parallel sides?

Question 3

Which two special quadrilaterals have diagonals that bisect each other at right angles?

Question 4

ABCD is a parallelogram with angle A = 65°. Find angle B, angle C and angle D.

Section B: Standard (Questions 5-10)

Question 5

Explain why the four angles of any quadrilateral add to 360°. (Hint: draw one diagonal.)

Question 6

A rhombus has one angle of 48°.

(a) Find the other three angles.

(b) A diagonal is drawn from the vertex with the 48° angle. The diagonals of a rhombus bisect its angles. What angle does this diagonal make with each of the two sides at that vertex?

Question 7

ABCD is a kite with AB = AD and CB = CD. angle A = 120° and angle C = 50°. Find angle B and angle D.

Question 8

PQRS is a rectangle. Its diagonals PR and QS meet at O. If PR = 18 cm, find the length of OQ. Give a reason.

Question 9

ABCD is a parallelogram and its diagonals meet at M. AM = (2x + 3) cm and MC = (5x - 9) cm.

(a) Find x.

(b) Find the length of the diagonal AC.

Question 10

Copy and complete the table. Write Yes if the property is always true for that shape, and No if it is not always true.

Shape	Diagonals equal in length	Diagonals perpendicular	Diagonals bisect each other
Parallelogram			
Rectangle			
Rhombus			
Square			
Kite			

Properties of quadrilaterals: answers

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Question 1

Answer: 70° (360 - 290)

Question 2

Answer: Trapezium

Question 3

Answer: Rhombus and square

Question 4

Answer: angle B = 115°, angle C = 65°, angle D = 115°

Question 5

Answer: A diagonal splits the quadrilateral into two triangles, each with angle sum 180°, so the total is 2 × 180° = 360°.

Question 6

Answer: (a) 132°, 48°, 132° (b) 24° with each side

Question 7

Answer: angle B = angle D = 95° ((360 - 170) ÷ 2; the angles between the unequal sides of a kite are equal)

Question 8

Answer: 9 cm (diagonals of a rectangle are equal and bisect each other, so OQ = ½QS = ½PR)

Question 9

Answer: (a) x = 4 (2x + 3 = 5x - 9) (b) 22 cm (AM = MC = 11)

Question 10

Answer:

Shape	Equal	Perpendicular	Bisect each other
Parallelogram	No	No	Yes
Rectangle	Yes	No	Yes
Rhombus	No	Yes	Yes

Square	Yes	Yes	Yes
Kite	No	Yes	No