2.10 Angles: Test Pack

EDEXCEL 1MA1 · Calculator allowed · about 60 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Write down the answer to each question about angle facts.

(a) Write down the size of a right angle. **(1)**

.....

(b) Write down the sum of the angles on a straight line. **(1)**

.....

(c) Write down the sum of the angles around a point. **(1)**

.....

(d) Write down the sum of the angles in a triangle. **(1)**

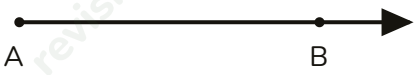
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(Total for Question 1 is 4 marks)

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2 Ray AB is drawn below from point A.

Using a protractor, draw a ray AC so that angle BAC = 62 degrees. Label your angle.



(Total for Question 2 is 1 mark)

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3 Two straight lines cross at a point, forming four angles. Circle the mathematical name for two of these angles that are on opposite sides of the crossing point and share no arm.

- ☐ A) Corresponding
- ☐ B) Co-interior
- ☐ C) Vertically opposite
- ☐ D) Alternate

(Total for Question 3 is 1 mark)

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4 Four angles meet at a point. Three of them are 80 degrees, 95 degrees and 110 degrees. Work out the size of the fourth angle.

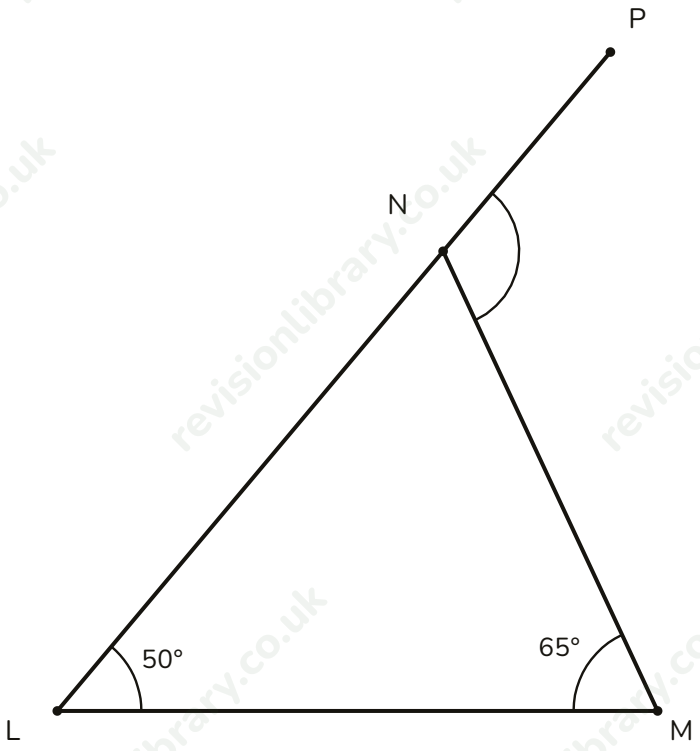
(Total for Question 4 is 1 mark)

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5 Triangle LMN has angle L = 50 degrees and angle M = 65 degrees. NP is a straight line through N, so angle MNP is an exterior angle of the triangle at N.

Work out the size of the exterior angle MNP.

Diagram NOT accurately drawn



(Total for Question 5 is 2 marks)

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6 Angles on a point are 45 degrees, 56 degrees and x degrees (with no other angles). Work out the value of x. Give a reason for your answer.

(Total for Question 6 is 3 marks)

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7 Triangle ABC is isosceles with AB = AC. Angle ABC = 65 degrees. Work out the size of angle BAC.

(Total for Question 7 is 3 marks)

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8 A triangular flag has angles of 55 degrees, 61 degrees and w.

(a) Work out the size of angle w. **(2)**

.....

(b) Write down the mathematical name for a triangle in which all three angles, and all three sides, are different sizes. **(1)**

.....

(Total for Question 8 is 3 marks)

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9 Amelia is working out the size of angle x, where x and a 132 degree angle lie together on a straight line. She writes:

'x = 180 + 132 = 312 degrees'

(a) Identify the error in Amelia's method. **(1)**

(b) Work out the correct value of x. **(1)**

.....

(Total for Question 9 is 2 marks)

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10 Two parallel lines are cut by a transversal. One of the angles formed measures 74 degrees. Angle m is alternate to this 74 degree angle.

Write down the size of angle m. Give a reason for your answer.

(Total for Question 10 is 2 marks)

11 Two straight lines cross at a point. One of the four angles formed is 4x degrees. The angle vertically opposite to it measures 68 degrees.

Work out the value of x.

(Total for Question 11 is 2 marks)

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12 A quadrilateral ABCD has angle A = 72 degrees, angle B = 99 degrees, angle C = 107 degrees and angle D = y.

(a) Work out the size of angle y. **(1)**

.....

(b) Give a reason for your answer to part (a). **(1)**

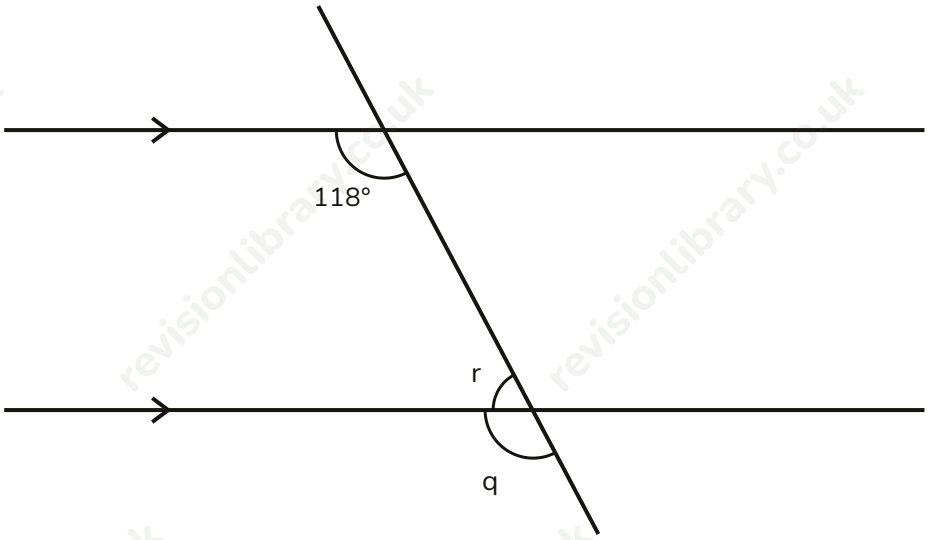
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(Total for Question 12 is 2 marks)

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13 Two parallel lines are cut by a transversal. Angle p = 118 degrees is marked between the transversal and the upper parallel line. Angle q is corresponding to angle p on the lower parallel line. Angle r is co-interior (allied) with angle p.

Diagram NOT accurately drawn



(a) Write down the size of angle q. Give a reason for your answer. **(2)**

.....

.....

(b) Work out the size of angle r. Give a reason for your answer. **(2)**

.....

(Total for Question 13 is 4 marks)

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14 Three angles, p, q and r, lie together on a straight line, where p = (x + 20) degrees, q = (2x + 10) degrees and r = (3x - 30) degrees.

(a) Show that x = 30. **(3)**

(b) Work out the size of the smallest of the three angles. **(2)**

.....

(Total for Question 14 is 5 marks)

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15 Triangle ABC is isosceles with AB = AC. Angle ABC = 42 degrees.

(a) Work out the size of angle A. **(1)**

.....

(b) Give a reason for your answer to part (a). **(1)**

.....

(Total for Question 15 is 2 marks)

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16 Two straight cables cross at a fixed point. The angle on one side of the crossing point is (5x - 15) degrees, and the angle vertically opposite it, on the other side, is (3x + 25) degrees. Work out the value of x.

(Total for Question 16 is 2 marks)

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17 A student was asked to work out angle b, given that angle a = 132 degrees and that angles a and b lie on a straight line. The student's working was: b = 180 + 132 = 312 degrees.

(a) Identify the error in the student's method. **(1)**

(b) Work out the correct value of angle b. **(1)**

.....

(Total for Question 17 is 2 marks)

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18 Triangle LMN has angle L = 57 degrees and angle M = 68 degrees. The side LN is extended beyond N to a point O, so that angle MNO is the exterior angle at N. Show that angle MNO = 125 degrees.

(Total for Question 18 is 2 marks)

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Mark scheme · 2.10 Angles: Test Pack

Question 1

(a) 90 (degrees) cao **B1**

(a) Answer: 90 degrees

(b) 180 (degrees) cao **B1**

(b) Answer: 180 degrees

(c) 360 (degrees) cao **B1**

(c) Answer: 360 degrees

(d) 180 (degrees) cao **B1**

(d) Answer: 180 degrees

Question 2

angle BAC drawn = 62 degrees (tolerance ± 2 degrees) **B1**

Answer: Angle BAC = 62 degrees

Question 3

C circled, cao **B1**

Answer: C) Vertically opposite

Question 4

75 degrees cao **B1**

Answer: 75 degrees

Question 5

50 + 65 **M1**

115 cao **A1**

Answer: Angle MNP = 115 degrees

Question 6

360 - 101 **M1**

x = 259 cao **A1**

Angles around a point add up to 360 degrees **B1**

Answer: x = 259; angles around a point add up to 360 degrees

Question 7

65 + 65 or 2 x 65 **M1**

50 degrees cao **A1**

angles in a triangle add up to 180 **B1**

Answer: 50 degrees

Question 8

(a) 180 - 55 - 61 **M1**

(a) w = 64 cao **A1**

(a) Answer: w = 64 degrees

(b) scalene cao **B1**

(b) Answer: Scalene

Question 9

(a) she should subtract 132 from 180, not add it, oe **B1**

(a) Answer: She added 132 to 180 instead of subtracting it from 180.

(b) x = 48 cao **B1**

(b) Answer: x = 48 degrees

Question 10

m = 74 cao **B1**

correct reason given, e.g. alternate angles are equal oe **B1**

Answer: m = 74 degrees

Question 11

4x = 68 (vertically opposite angles are equal) oe **M1**

x = 17 cao **A1**

Answer: x = 17

Question 12

(a) 82 degrees cao **B1**

(a) Answer: 82 degrees

(b) angles in a quadrilateral sum to 360 degrees oe **B1**

(b) Answer: Angles in a quadrilateral add up to 360 degrees.

Question 13

(a) q = 118 cao **B1**

(a) correct reason given, e.g. corresponding angles are equal oe **B1**

(a) Answer: q = 118 degrees

(b) r = 62 cao **B1**

(b) correct reason given, e.g. co-interior (allied) angles sum to 180 oe **B1**

(b) Answer: r = 62 degrees

Question 14

(a) (x + 20) + (2x + 10) + (3x - 30) = 180 (angles on a straight line) oe **M1**

(a) 6x = 180 **M1**

(a) x = 30 shown correctly, cso **A1**

(a) Answer: x = 30

(b) substitutes x = 30 into p, q and r **M1**

(b) 50 (degrees) cao, ft their x **A1**

(b) Answer: 50 degrees (angle p)

Question 15

(a) 96 degrees cao **B1**

(a) Answer: 96 degrees

(b) base angles of an isosceles triangle are equal oe **B1**

(b) Answer: Base angles in an isosceles triangle are equal.

Question 16

equate vertically opposite angles: 5x - 15 = 3x + 25 **M1**

x = 20 cao **A1**

Answer: x = 20

Question 17

(a) identifies that the student added 132 to 180 instead of subtracting it oe **B1**

(a) Answer: The student added 132 to 180 instead of subtracting it.

(b) 48 degrees cao **B1**

(b) Answer: 48 degrees

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Question 18

correct method, e.g. interior angle N = 180 - 57 - 68 oe, or exterior = L + M **M1**

125 degrees cso **A1**

Answer: 125 degrees (shown)

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