



2.10D Angles: Fluency and Exam Drill

EDEXCEL 1MA1 · Calculator allowed · about 50 minutes

Total Marks

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Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

- 1** Work out the missing angle. The two angles are on a straight line; one angle is 127 degrees. Find the other angle.

(Total for Question 1 is 1 mark)

- 2** Work out the missing angle at a point. At a point three angles are 120 degrees, 95 degrees and x . Find x .

(Total for Question 2 is 1 mark)

- 3** Two straight lines cross. Work out the size of the angle vertically opposite to an angle of 52 degrees.

(Total for Question 3 is 1 mark)

- 4** Work out the missing angle. On a straight line the two adjacent angles are 46 degrees and x . Find x .

(Total for Question 4 is 1 mark)

- 5** Triangle ABC has angle A = 50 degrees and angle B = 60 degrees.

(a) Work out the size of angle C. (1)

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

(Total for Question 5 is 2 marks)

6 The angles in a triangle are x , $2x$ and $3x$. Work out the value of x .

(Total for Question 6 is 2 marks)

7 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 7 is 2 marks)

8 Two straight lines cross. One angle is 128 degrees. Work out the size of the adjacent angle that forms a linear pair with the 128 degree angle.

(Total for Question 8 is 1 mark)

9 In triangle ABC an exterior angle at C is 110 degrees. Work out the sum of angles A and B.

(Total for Question 9 is 1 mark)

10 In triangle PQR the angles are $2x$, $3x - 10$ and 40 degrees. Work out x .

(Total for Question 10 is 2 marks)

11 In triangle ABC angle A is twice angle B and angle C = 30 degrees.

(Total for Question 11 is 3 marks)

12 The angles in a triangle are in the ratio 2: 3: 4. Work out the size of each angle.

(Total for Question 12 is 2 marks)

13 Two straight lines intersect. One angle is $3x + 10$ degrees and the vertically opposite angle is $2x + 20$ degrees. Work out the value of x and the size of the angle adjacent to $3x + 10$.

(Total for Question 13 is 3 marks)

14 In triangle ABC the exterior angle at C is $2x + 20$ degrees. The interior opposite angles are $x + 10$ and $3x - 5$. Work out the value of x .

(Total for Question 14 is 3 marks)

Mark scheme · 2.10D Angles: Fluency and Exam Drill

Question 1

- **B1** 53 degrees cao
- **Answer: 53 degrees**

Question 2

- **B1** 145 degrees cao
- **Answer: 145 degrees**

Question 3

- **B1** 52 degrees cao
- **Answer: 52 degrees**

Question 4

- **B1** 134 degrees cao
- **Answer: 134 degrees**

Question 5

- (a) **B1** 70 degrees cao
- (a) **Answer: 70 degrees**
- (b) **B1** angles in a triangle sum to 180 degrees oe
- (b) **Answer: Angles in a triangle add to 180 degrees.**

Question 6

- **M1** form $x + 2x + 3x = 180$ or $6x = 180$ oe
- **A1** $x = 30$ degrees cao
- **Answer: 30 degrees**

Question 7

- (a) **B1** 96 degrees cao
- (a) **Answer: 96 degrees**
- (b) **B1** base angles of an isosceles triangle are equal oe
- (b) **Answer: Base angles in an isosceles triangle are equal.**

Question 8

- **B1** 52 degrees cao
- **Answer: 52 degrees**

Question 9

- **B1** 110 degrees cao
- **Answer: 110 degrees**

Question 10

- **M1** form $2x + (3x - 10) + 40 = 180$ oe
- **A1** $x = 30$ degrees cao
- **Answer: 30 degrees**

Question 11

- **M1** form $2x + x + 30 = 180$ oe
- **M1** $3x = 150$ oe
- **A1** $x = 50$ and angles $A = 100$, $B = 50$ cao
- **Answer: Angle A = 100 degrees, Angle B = 50 degrees, Angle C = 30 degrees ($x = 50$ degrees).**

Question 12

- **M1** form $2k + 3k + 4k = 180$ or $9k = 180$ oe
- **A1** angles 40, 60 and 80 degrees cao
- **Answer: 40 degrees, 60 degrees and 80 degrees**

Question 13

- **M1** equate vertically opposite angles: $3x + 10 = 2x + 20$
- **A1** $x = 10$ cao
- **A1** adjacent angle $= 180 - (3x + 10) = 140$ degrees cao
- **Answer: $x = 10$, adjacent angle = 140 degrees**

Question 14

- **M1** use exterior angle theorem: $2x + 20 = (x + 10) + (3x - 5)$
- **M1** simplify to $2x + 20 = 4x + 5$ then rearrange to $2x = 15$
- **A1** $x = 15/2$ (or 7.5) cao
- **Answer: $x = 15/2$ (7.5)**