

Past-paper walk-through

Circle theorems I ■ E4.7

eXercise

Questions in this set

- 0580/21 N25 Q14 ■ 9 marks
- 0580/23 N25 Q21 ■ 3 marks
- 0580/42 N25 Q12 ■ 8 marks
- 0580/21 J25 Q10 ■ 9 marks

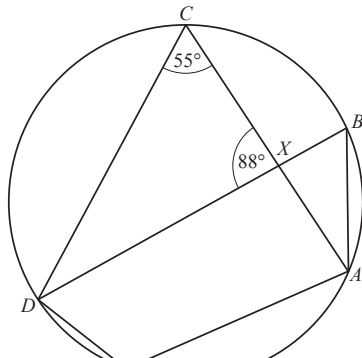
Reading the mark scheme

- **B1** a mark that stands on its own – the point is either made or not.
- **M1** a *method* mark: the right approach, even if the number is wrong.
- **A1** an *answer* mark, and it usually needs its M mark first.
- **C1** a working mark on the way to the answer.
- **//** separates answers the examiner accepts equally.
- **ecf** = error carried forward: a later part is marked on your own earlier answer.
- **owtte** = “or words to that effect” – the wording need not match.

Question 14

0580/21 N25 ■ Q14 ■ 9 marks

14

NOT TO
SCALE

Question 14



A, B, C, D and E lie on the circle.

AC and BD intersect at X .

Angle $ACD = 55^\circ$ and angle $CXD = 88^\circ$.

(a) Complete the statements, giving a geometrical reason in each part.

Question 14

[6]

- (b) Triangle CXD is mathematically similar to triangle BXA .
 $DX = 8.0$ cm, $BX = 2.7$ cm and $AX = 4.0$ cm.
- (i) Work out the length of CX .

Question 14

Question 14

(ii) Complete the statement.

Question 14

15 (a) Write 66 000 in standard form.

Question 14

(b) Work out $(3.7 \times 10^8) + (3.7 \times 10^7)$.

Give your answer in standard form.

Question 14

Solution 14

(a) Mark scheme

- 37
- Angle sum of triangle = 180
- 2 B1 for each
- 55
- Angles in the same segment are equal
- 2 B1 for each
- 125
- Opposite angles of cyclic quadrilateral

Solution 14

- sum to 180
- 2 B1 for each

Solution 14

(b)(i)**Mark scheme**

- 5.4
- 2 M1 for 4
- 2.7
- $8 = CX$ oe

Solution 14

(b)(ii)

Mark scheme

- 4 : 1 oe
- 1
- 0580/21
- October/November 2025
- Partial Marks

Question 21

0580/23 N25 ■ Q21 ■ 3 marks

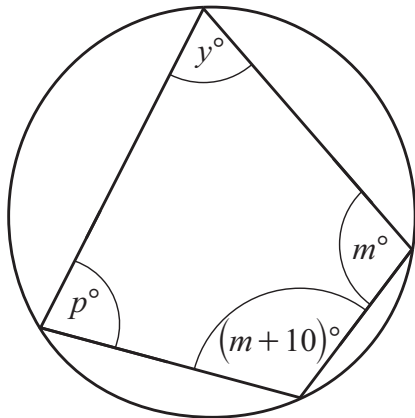
21 m 10 c + ' j° p° y° m° NOT TO
SCALE

The diagram shows a cyclic quadrilateral.

Find the value of y .

$y = [4]$

[3]



Solution 21

- 62
- 4 B3 for $[m + 10 =] 118$
- or B2 for $m = 108$ or $p = 72$
- or M2 for 180
- 3
- 3
- $2 \times$
- $+$

Solution 21

- or M1 for recognising opposite angles in
- a cyclic quadrilateral add up to 180° so
- E
- A
- B
- E
- D
- C
- E

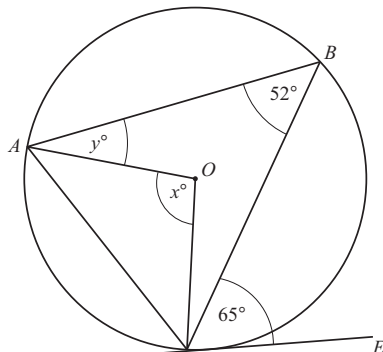
Solution 21

- 0580/23
- October/November 2025
- Partial Marks

Question 12

0580/42 N25 ■ Q12 ■ 8 marks

12

NOT TO
SCALE

Question 12



A , B and C lie on a circle centre O .

DE is a tangent to the circle at C .

Angle $ABC = 52^\circ$ and angle $BCE = 65^\circ$.

- (a) Find the value of x .
Give a geometrical reason for your answer.

Question 12

(b) Find the value of y .

Solution 12

(a)

Mark scheme

- 104
- and
- angle at the centre is
- twice the angle at the
- circumference
- 2 B1 for each

Solution 12

(b) Mark scheme

- 27
- 2 B1 for angle $BAC = 65$
- or angle $ACD = 52$
- or M1 for $OCB = 25$ and reflex $AOC = 360 - \text{their}$
- 104 or for OAC or $OCA = 38$ FT 180
- 104
- 2
- their

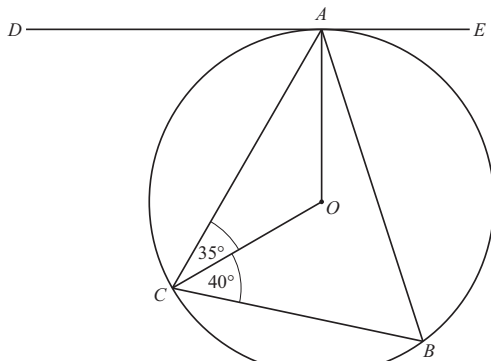
Solution 12



Question 10

0580/21 J25 ■ Q10 ■ 9 marks

10

NOT TO
SCALE

Question 10



A , B and C are three points on a circle, centre O .

DE is a tangent to the circle at A .

Angle $ACO = 35^\circ$ and angle $BCO = 40^\circ$.

Find

(a) angle AOC

Question 10

(b) angle ABC

Question 10

(c) angle DAC

Question 10

(d) angle OAB .

Solution 10

(a)

Mark scheme

■ 110

Solution 10

(b)

Mark scheme

- 55
- 1 FT their $110 \div 2$

Solution 10

(c)

Mark scheme

- 55
- 1 FT their (b)
- Provided their (b) < 90

Solution 10

(d)

Mark scheme

- 15
- 1 FT 70 – their (b)
- Provided their (b) < 70