Mark scheme

Circle theorems

Mathematics 0580 · Questions from Paper 1, Paper 2, Paper 3 and Pape…

Total marks

37

MARKS FOR EACH QUESTION

1	2	3	4	5	6	7	8	9	10	Total
1	1	2	3	3	4	4	5	6	8	**37**

Question 1 **[1]**

1	54	**1**	

Question 2 **[1]**

2	5	**1**	

Question 3 **[2]**

3	52	**2**	**M1** for 360 – 90 – 90 – 128 oe or **B1** for [obtuse angle] $AOC = 128$ or AOD or $COD = 64$ or DAO or $DCO = 90$

Question 4 **[3]**

4(a)	Chord	**1**	
4(b)	58	**1**	
	Angle in a semicircle = 90°	**1**	

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Question 5 **[3]**

5(a)	55 Alternate segment theorem	**2**	**B1** for 55
5(b)	Tangents from an external point are equal in length	**1**	

Question 6 **[4]**

6 (a)	[x =] 32	**2**	**M1** for angle $OCD = 90°$ soi (or angle $OCB = 90°$)
(b)	[y =] 58	**2ft**	**M1** for angle $AEC = 90°$ soi Follow through 90 – their (a)

Question 7 **[4]**

7	[x =] 29 [y =] 52 [z =] 107	**4**	**B1** for 29 **B1** for 52 **B2FT** for 107 or for $z =$ *their* $x +$ *their* $y + 26$ or **B1** for $\angle EAC = 73$ or $\angle EBC = 73$ or **B1FT** for $\angle EAC = 180 - ($*their* $x +$ *their* $y + 26)$

Question 8 **[5]**

8(a)	70 **and** opposite angles of a cyclic quadrilateral sum to 180 oe	**2**	**B1** for 70 or for a fully correct reason
8(b)(i)	65	**2**	**FT** 180 – 45 – *their* 70 for 2 marks **B1** for angle $BDC = 45$ or **M1** for 180 – 45 – *their* 70 oe or for 180 – (20 + 45) – (180 – (110 + 20)) oe
8(b)(ii)	65	**1**	**FT** *their* **(b)(i)**

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Question 9 [6]

9(a)	52°	**3**	**M1** for $180 - 2 \times 38$, implied by 104 **M1** for *their AOB* ÷ 2
9(b)(i)	80°	**2**	**B1** for *FEC* =50 or *FCE* = 50
9(b)(ii)	100°	**1**	**FT** 180 – *their* **(i)**

Question 10 [8]

10	**(a)**	63 (Angles on a straight) line (add to) 180	**1** **1**	
	(b)	90 (Angle in a) semi circle	**1** **1**	
	(c)	117 Corresponding (angles)	**1** **1**	
	(d)	90 Tangent and radius	**1** **1**	

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