

01. 0607_m24_ms_42 Q: 7

Question	Answer	Marks	Partial Marks
(a)(i)	50	2	B1 for angle $BCF = 130$ or angle $EBC = 50$ soi by angle $EBG = 30$ and angle $GBC = 20$ or angle $FCG = 75$ and angle $GCB = 55$
(a)(ii)	20	1	

Question	Answer	Marks	Partial Marks
(a)(iii)	75	2	M1 for $\frac{180-30}{2}$
(b)(i)	2 from Angle $AXB = \text{Angle } DXC$ [Vertically] opposite angles Angle $ABX = \text{Angle } DCX$ Angles in same segment. Angle $BAX = \text{Angle } CDX$ Angles in same segment. And conclusion AA[A]	2	B1 for 2 pairs correct with no/incorrect reasons and conclusion or for one pair correct with reason.
(b)(ii)	6.5	3	B2 for $BX = 2.5$ or M1 for $\frac{\dots}{2} = \frac{5}{4}$ oe

02. 0607_s24_ms_41 Q: 5

Question	Answer	Marks	Partial Marks
(a)	trapezium	1	

Question	Answer	Marks	Partial Marks
(b)	Angle between tangent and radius oe	1	
(c)(i)	119	1	
(c)(ii)	22	1	
(c)(iii)	39	2	M1 for $180 - \text{their (i)} - \text{their (ii)}$
(c)(iv)	29	2	B1 for 61 or 122 at centre (may be on diagram)

03. 0607_s23_ms_43 Q: 10

Question	Answer	Marks	Partial Marks
(a)	156	1	
(b)	12	2	M1 for $\frac{180 - \text{their}(a)}{2}$
(c)	102	1	
(d)	29	3	M2 for $x + x + \text{their}102 + 20 = 180$ oe or M1 for indicating angle $CDE =$ angle DAC

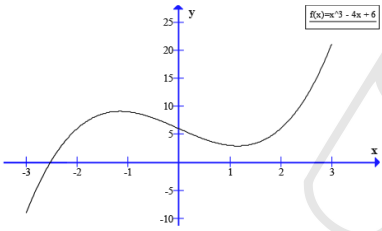
04. 0607_w23_ms_42 Q: 10

Question	Answer	Marks	Partial Marks
(a)	45	1	
(b)	124	2	B1 for $BED = 62$
(c)(i)	$[EOD=] 72$ or $[ODE=] 54$	B1	seen or implied by 36
	$2 \times 7.5 \times \tan 36$ oe or $2 \times \frac{7.5}{\tan 54}$	M2	M1 for $\tan(36) = \frac{\text{halfside}}{7.5}$ or $\tan 54 = \frac{7.5}{\text{halfside}}$
	10.89....	A1	no errors or omissions
(c)(ii)	13.1 or 13.11 to 13.13...	4	M1 $r^2 = 7.5^2 + \left(\frac{10.9}{2}\right)^2$ or better or trig method for r M1 $\frac{1}{2} \times 10.9 \times 7.5$ or $\frac{1}{2} \times \text{their } r^2 \times \text{their } \sin 72$ oe M1 $\frac{\text{their}72}{360} \times \pi \times \text{their } r^2$ oe

05. 0607_w23_ms_43 Q: 11

Question	Answer	Marks	Partial Marks
(a)	33.7 or 33.69...	2	M1 for $\tan[p] = \frac{12}{18}$
(b)(i)	$150^2 + 180^2$	M1	
	$[\cos=] \frac{192^2 + 230^2 - \text{their}(180^2 + 150^2)}{2 \times 190 \times 230}$	M2	M1 for <i>their</i> $(180^2 + 150^2) = 190^2 + 230^2 - 2 \times 190 \times 230 \cos B$
	67.03 to 67.04	A1	
(b)(ii)	175 or 174.8 to 174.9...	3	M2 for $\sin 67[.0] = \frac{x}{190}$ oe or M1 for distance required is perpendicular to BC oe

06. 0607_w16_ms_43 Q: 5

Question	Answer	Mark	Part Marks
(a)	Correct sketch 	2	B1 for correct cubic shape with maximum on left of minimum
(b)	-2.67 or -2.669 ... 0.524 or 0.5239 to 0.5240 2.15 or 2.145...	1 1 1	
(c) (i)	Maximum (-1.15, 9.08) Minimum (1.15, 2.92)	3	or (-1.155 to -1.154, 9.079...) or (1.154 to 1.155, 2.920 to 2.921) B2 for either maximum or minimum or B1 for 1 correct value
(ii)	$k < 2.92$ and $k > 9.08$	1FT	or above accuracy.
(d)	Rotational Order 2 (0, 6)	1 1 1	

07. 0607_s17_ms_43 Q: 2

Question	Answer	Marks	Part Marks
(a)(i)	44	2	M1 for [angle BAC or $DEC =$] $180 - 2 \times 68$, soi by angle $CDE = 44$ or M1 for angle $BAC = \text{their angle } CDE$
(a)(ii)	isosceles	1	
(b)	162	3	M2 for $180 - \frac{360}{20}$ or $\frac{180 \times (20 - 2)}{20}$ or M1 for $\frac{360}{20}$ or $180 \times (20 - 2)$
(c)(i)	Angle sum of triangle oe	1	
(c)(ii)(a)	similar	1	
(c)(ii)(b)	5.4	2	M1 for $\frac{5}{3} = \frac{9}{QR}$ oe



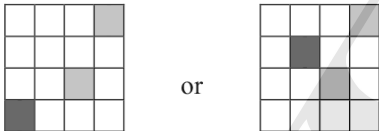
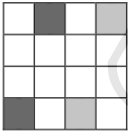
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Qu.	Answer	Mark	Part Marks
(a)	$ABF = DEF$ (alternate angles) $BAF = EDF$ (alternate angles) $AFB = DFE$ ([vert] opposite angles)	1 + 1	One mark for first fully correct and one for second fully correct. or B1 for any 2 pairs of angles <u>identified</u> without a reason or with an incorrect reason
(b) (i)	4.8 oe	3	<u>Method 1</u> Triangles ABF, CEB [where $x = AB$] M2 for $\frac{10}{6} = \frac{8}{x}$ oe or M1 for $\frac{BC}{AF} = \frac{EC}{AB}$ oe <u>Method 2</u> Triangles ABF, DEF [where $x = AB$] M2 for $\frac{8-x}{x} = \frac{4}{6}$ oe or M1 for $\frac{FD}{AF} = \frac{ED}{AB}$ oe <u>Method 3</u> Triangles EFD, EBC [where $y = ED$] M2 for $ED = 3.2$ or M1 for $\frac{BC}{FD} = \frac{EC}{ED} \left[= \frac{10}{4} = \frac{8}{y} \right]$ oe
(ii)	$\frac{4}{9}$ oe	1	
(iii)	$\frac{4}{30}$ oe	2	M1 for Area of $ABF = \frac{3}{10}$ Area of $ABCD$ or ratio of EFD to $EBC = 4 : 25$ oe soi or correct use of $\frac{1}{2}ab\sin C$ or e.g. $\frac{\frac{1}{2} \times theirED \times 4}{10 \times theirDC}$

09. 0607_w15_ms_41 Q: 4

Question	Answer	Mark	Part Marks
(a)	6.75	2	M1 for $\frac{4}{9} = \frac{3}{CX}$ oe or better
(b)	3	2	M1 for $\frac{8}{6} = \frac{4}{RY}$ oe or better
(c)	8.49 or 8.484 to 8.485...	3	M2 for $\frac{12}{w} = \sqrt{\frac{90}{45}}$ oe or better or M1 for $\sqrt{\frac{90}{45}}$ or $\sqrt{\frac{45}{90}}$ oe soi or $\left(\frac{12}{w}\right)^2 = \frac{90}{45}$ oe

10. 0607_w15_ms_43 Q: 4

Question	Answer	Mark	Part Marks
(a) (i)		1	
(ii)		1	
(b) (i)	7	2	M1 for $\frac{3}{2} = \frac{10.5}{RQ}$ oe or better
(ii)	20	2	M1 for $\left(\frac{3}{2}\right)^2$ or $\left(\frac{2}{3}\right)^2$ oe

11. 0607_s15_ms_41 Q: 10

Qu.	Answer	Mark	Part Marks
(a)	86.1 or 86.08 to 86.09	2	M1 for $65^2 + 80^2 - 2 \times 65 \times 80 \times \cos 72$
(b)	39.1 or 39.07 to 39.09	3	M2FT for $[\sin A =] \frac{64 \times \sin 58}{\text{their (a)}}$ or M1FT for $\frac{64}{\sin A} = \frac{\text{their } 86.1}{\sin 58}$ oe
(c)	5210 or 5206 to 5207	4FT	M1 for $0.5 \times 65 \times 80 \times \sin 72$ M2FT for $0.5 \times 64 \times \text{their } 86.1 \times \sin (180 - 58 - \text{their (b)})$ oe or M1 for $[\text{angle } ACD] = 180 - 58 - \text{their (b)}$

12. 0607_m22_ms_42 Q: 4

Question	Answer	Marks	Partial Marks
(a)	[a =] 65 [b =] 85 [c =] 95	3	B1 for each
(b)	[u =] 70 [v =] 30 [w =] 80 [x =] 20 [y =] 50 [z =] 60	6	B1 for each FT 180 – their u – their v FT 150 – their x – their w FT 110 – their y

13. 0607_w21_ms_43 Q: 9

Question	Answer	Marks	Partial Marks
(a)	90	1	
(b)(i)	$90 - x$ oe	1	
(b)(ii)	$90 - x$ oe	1	
(b)(iii)	$2x$	1	
(c)	Kite	1	
(d)(i)	<i>OAD</i> and <i>OBD</i> or <i>OAP</i> and <i>OBP</i> or <i>ADP</i> and <i>BDP</i>	1	

Question	Answer	Marks	Partial Marks
(d)(ii)	One from one of pairs in part (i) and One from one of other pairs in part (i)	1	

14. 0607_w20_ms_41 Q: 5

Question	Answer	Marks	Partial Marks
(a)	90	1	
(b)	94	2	M1 for $180 - 43 - 43$ or 2×47

Question	Answer	Marks	Partial Marks
(c)	22	2	B1 for $CAB = 65$ or $ACB = 47$
(d)	112	2	M1 for $180 - \text{their } ABC$
(e)	34	2	FT <i>their</i> (d) M1 for $(180 - \text{their}(\mathbf{d}))/2$
(f)	16	2	B1 for $BCT = 99$

15. 0607_w20_ms_43 Q: 2

Question	Answer	Marks	Partial Marks
(a)	172	3	M2 for $180 - \frac{360}{45}$ or for $\frac{180 \times (45 - 2)}{45}$ or M1 for $\frac{360}{45}$ (implied by 8) or for $180 \times (45 - 2)$ (implied by 7740)
(b)(i)	75	1	
(b)(ii)	110	2	B1 for angle $CAT = 110$ or angle $CDA = 70$ or M1 for $180 - \text{their angle } CDA$.
(c)(i)	similar	1	
(c)(ii)	4	3	M2 for $\frac{9}{6} = \frac{AD+2}{AD}$ oe or M1 for $\frac{AD}{AB} = \frac{6}{9}$ oe
(c)(iii)	20.25	2	M1 for $\left(\frac{3}{2}\right)^2$ or $\left(\frac{2}{3}\right)^2$ oe seen

16. 0607_w19_ms_42 Q: 5

Question	Answer	Marks	Partial Marks
(a)(i)	140	2	B1 for angle $OBA = 20$ soi
(a)(ii)	70	1	FT $0.5 \times \text{their}(\mathbf{i})$
(a)(iii)	110	1	FT $180 - \text{their}(\mathbf{ii})$

Question	Answer	Marks	Partial Marks
(a)(iv)	45	1	
(a)(v)	25	1	
(a)(vi)	40	1	
(b)	Cyclic [quadrilateral]	1	

17. 0607_s18_ms_42 Q: 8

Question	Answer	Marks	Partial Marks
(a)	[Angle between] tangent and radius/diameter	1	
(b)(i)	108	2	M1 for $ADO = 36$ soi

Question	Answer	Marks	Partial Marks
(b)(ii)	54	2	M1 for $\frac{\text{their(b)(i)}}{2}$ or $90 - 36$ or $\frac{180 - 72}{2}$
(b)(iii)	90	1	
(b)(iv)	18	1	
(b)(v)	48	1	

18. 0607_s18_ms_43 Q: 11

Question	Answer	Marks	Partial Marks
(a)(i)	Angle X is common oe $\angle XCB = \angle XAD$ (angles in same segment) oe	2	B1 for each If 0 scored SC1 for 2 pairs of angles without reasons
(a)(ii)	$\frac{XA}{XC} = \frac{XD}{XB}$ oe	1	
(b)	8	2	M1 for $12 \times 7 = XA \times 6$ soi (implied by 14)
(c)(i)	$\frac{49}{36}$ oe	1	
(c)(ii)	$\frac{64}{25}$ oe	1	

19. 0607_w18_ms_41 Q: 8

Question	Answer	Marks	Partial Marks
(a)	90 Angle [between] tangent and radius oe	2	B1 for each
(b)	60	4	B3 for angle $AOT = 60$ or M2 for $\sin(OAT) = \frac{1}{2}$ or $\cos(OAT) = \frac{1}{2}$ oe or M1 for $OT = 2OA$ oe

20. 0607_s17_ms_41 Q: 5

Question	Answer	Marks	Partial Marks
(a)	[Angle between] tangent [and] radius / diameter [=90] oe	1	
(b)(i)	134	2	M1 for $360 - 90 - 90 - 46$ oe
(b)(ii)	23	2	M1 for $(180 - \text{their (i)}) \div 2$ oe
(b)(iii)	67	2	FT $(\text{their (i)}) \div 2$ M1 for $(\text{their (i)}) \div 2$ oe
(b)(iv)	113	2	FT $180 - \text{their (iii)}$ or $(360 - \text{their (i)}) \div 2$ M1 for $180 - \text{their (iii)}$ or $(360 - \text{their (i)}) \div 2$ oe
(c)	44	3	M2 for $180 - 67 - 23 - 23 - 23$ oe or $360 - 226 - 67 - 23$ oe or B1 for angle $OBC = 23$ or 226 seen

21. 0607_s16_ms_43 Q: 12

Question	Answer	Mark	Part Marks
(a)	18	2	M1 for $4x + 6x = 180$
(b)	18	2	M1 for $180 - 6x - 3x$
(c)	90	3	M2 for $180 - 3x - x - x$ or B1 for $CED = x$ or $DCE = 4x$

22. 0607_w16_ms_42 Q: 4

Question	Answer	Mark	Part Marks
(a)	48	1	
(b)	84	2	FT $(180 - 2 \times \text{their (a)})$, $\text{their (a)} \neq 45$ M1 for $(180 - 2 \times \text{their (a)})$ $\text{their (a)} \neq 45$
(c)	42	1	FT $\text{their (b)} \div 2$
(d)	69 cao	2	B1 for angle OBC or $OAC = 21$ or angle $ABC = 69$
(e)	55.5	2	FT their (d) M1 for $(180 - \text{their (d)}) \div 2$

23. 0607_s15_ms_41 Q: 8

Qu.	Answer	Mark	Part Marks
(a) (i)	64	1	FT 90 – their (a)(i)
(ii)	26	1FT	
(iii)	64	1	
(b)	Kite or Cyclic Quadrilateral	1	
(c) (i)	<i>OAP</i>	1	
(ii)	<i>OXB</i> or <i>OXA</i>	1	

24. 0607_w15_ms_43 Q: 9

Question	Answer	Mark	Part Marks
(a)	127	3	M1 for angle ADB or ABD $= 0.5(180 - 124)$ implied by 28 in diagram M1 for angle $DBC = \text{angle } ADB$.
(b)	162	3	M2 for $(10 - 2) \times 180 - 9 \times 142$ or M1 for $(10 - 2) \times 180$
(c) (i)	65	2	B1 for angle $ADB = 25$ or angle $ACD = 65$
(ii)	70	2	B1 for angle $BAC = 20$ or angle $FDC = 70$
(iii)	85	1	

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