DarTutors · IGCSE Mathematics 0580-style practice

Paper 4 Calculator (Extended) – Mark scheme

(maximum mark 100)

Abbreviations: M method mark · A accuracy mark (depends on the M mark) · B independent mark · FT follow through after an earlier error · oe or equivalent · isw ignore subsequent working. Award full marks for a correct answer unless the question says "show" or asks for working. Accept answers correct to 3 significant figures (angles to 1 d.p.) unless the question says otherwise; the unrounded value is given in brackets. Parts of this mark scheme have not yet been reviewed by a teacher: check them before use.

Q	Part	Answer	Mark	Partial marks / guidance
1	(a)	240 ÷ 8 = 30; 3 × 30 = 90 and 5 × 30 = 150	1	
	(b)(i)	5	2	M1 for 90 × r × 2 / 100 = 9
	(b)(ii)	165	2	M1 for 99 ÷ 0.6
	(c)	162.24	2	M1 for 150 × 1.04^2
	(d)(i)	58.67	3	M1 for 150 × 4 × 20 / 100 (= 120); M1 for 328.67 − (150 + 120)
	(d)(ii)	219 (219.11…)	2	M1 for 328.67 ÷ 150 × 100
2	(a)	$y = (p + q)^2 - 5$	2	B1 for $(p + q)^2$ seen
	(b)	6x + 9(x − 3) = 51; x = 5.20	4	B1 for 6x + 9(x − 3) = 51; M1 for 15x − 27 = 51; M1 for 15x = 78; A1 for 5.2(0)
	(c)	Adults = 35, Children = 17	5	B1 for a + c = 52; B1 for 3a + 2c = 139; M1 for correct elimination; A1 A1
3	(a)(i)	3	1	
	(a)(ii)	4	1	
	(a)(iii)	4x − 3	2	M1 for 2(2x − 1) − 1
	(a)(iv)	(x + 1)/2	2	M1 for x = 2y − 1 or y + 1 = 2x
	(a)(v)	1.5 and −0.5	4	M1 for $(2x - 1)^2 = 4$; M1 for 2x − 1 = ±2 or $4x^2 - 4x - 3 = 0$; A1 A1
	(b)(i)	y = 16/x	2	M1 for y = k/x
	(b)(ii)	32	1	FT their k × 2
4	(a)	B, because 2/5 > 1/4	1	Both the box and a valid reason needed
	(b)(i)	A black 3/4; B 1/3; B white 2/5; B black 3/5	4	B1 for each
	(b)(ii)	1/2 (6/12)	2	M1 for 2/3 × 3/4
	(b)(iii)	7/10	2	M1 for their (b)(ii) + 1/3 × 3/5
	(c)	1/30	2	M1 for 1/3 × 2/5 × 1/4 (Box A gives probability 0)
5	(a)(i)	58.4° (58.41…)	4	M2 for $(14^2 + 6^2 - 12^2) / (2 \times 14 \times 6)$ (M1 for implicit form); A1 for 0.5238…; A1
	(a)(ii)	35.8 (35.77…)	2	M1 for ½ × 14 × 6 × sin(their angle)
	(b)	36.4° (36.44…)	3	M2 for sin RQP = 12 sin 117° / 18 (M1 for implicit form); A1
6	(a)	201 (200.5…)	2	M1 for ½ × 26 × 24 × sin 40°
	(b)	17.2 (17.20…)	4	M2 for $26^2 + 24^2 - 2 \times 26 \times 24 \cos 40°$ (M1 for implicit form); A1 for 295.9…; A1
	(c)	12.8 (12.77…)	4	B1 for angle BCD = 110°; M2 for BC = 24 sin 30° / sin 110° (M1 for implicit form); A1
	(d)	8.21 (8.208…)	2	M1 for their BC × sin 40°

Q	Part	Answer	Mark	Partial marks / guidance
7	(a)	$4/3 \times \pi \times 2.4^3 = 57.905\ldots \rightarrow 57.9$	2	M1 for $4/3 \times \pi \times 2.4^3$; A1 for 57.90... seen
	(b)(i)	14.4, 9.6, 4.8	3	B1 for each
	(b)(ii)	664 (663.552)	1	
	(b)(iii)	316	1	FT their (b)(ii) − 6 × 57.9
	(b)(iv)	507 (506.88)	2	M1 for 2(14.4 × 9.6 + 14.4 × 4.8 + 9.6 × 4.8)
	(c)(i)	521 (521.15…)	3	B1 for height 28.8; M1 for $\pi \times 2.4^2 \times$ their 28.8
	(c)(ii)	174 (173.7…)	1	FT their (c)(i) − 6 × 57.9
	(c)(iii)	470 (470.48…)	3	M1 for $2\pi \times 2.4 \times 28.8$; M1 for $2 \times \pi \times 2.4^2$
8	(a)	63.45	4	M1 for using mid-values 10, 30, 45, 55, 65, 75, 85, 95; M1 for Σfx (= 12 690); M1 for ÷ 200
	(b)(i)	75, 117, 195, 200	2	B1 for 2 or 3 correct
	(b)(ii)	Correct cumulative frequency curve through the eight points plotted at upper class boundaries	4	B1 horizontal scale/points at upper boundaries; P2 for 8 correct plots (P1 for 6 or 7); C1 for smooth curve or polygon through the points
	(c)(i)	66 (accept 65–67)	1	
	(c)(ii)	53 (accept 52–54)	1	
	(c)(iii)	24 (accept 22–26)	1	FT UQ (≈ 77) − their LQ
	(c)(iv)	46 (accept 42–50)	1	
	(c)(v)	172 (accept 170–174)	2	M1 for 200 − reading at t = 45 (≈ 28)
		Total	**100**	