

Calculator Diagnostic Assessment – Mark Scheme

1	8	B1	
2	12.116	B1	
3	0.85	B1	oe fraction, decimal or percentage
4	260×1.17	B1	
5	403 720	B1	Accept a comma between the 3 and the 7
6	$4\frac{5}{8}$	B1	oe eg $\frac{37}{8}$, 4.625
7	$\pi \times 8.3^2$ or [216.3, 216.5] or 68.89π or $\pi \times 5.2^2$ or [84.9, 85] or 27.04π	M1	oe
	[131.3, 131.6] or 41.85π	A1	
8	3 by 1 rectangle drawn with internal lines	B1	any orientation condone one or both missing internal lines

9	Alternative method 1		
	$5200 - 4108$ or 1092	M1	
	their $1092 \div 5200 \times 100$	M1dep	
	21	A1	
	Alternative method 2		
	$4108 \div 5200$ or 0.79	M1	implied by 79
	$100 -$ their 0.79×100	M1dep	
	21	A1	

10(a)	Alternative method 1		
	20×11 or 220 or $0.5 \times 7 \times 5$ or 17.5 or or 7×5 or 35	M1	
	$20 \times 11 + 0.5 \times 7 \times 5 + 7 \times 5$ or $220 + 17.5 + 35$	M1dep	
	272.5	A1	
	Alternative method 2		
	7×11 or 77 or $0.5 \times 7 \times 5$ or 17.5 or $(20 - 7 - 7) \times 11$ or 6×11 or 66 16×7 or 112	M1	may combine first two areas as $0.5 \times (16 + 11) \times 7$ or 94.5
	$7 \times 11 + 0.5 \times 7 \times 5 + (20 - 7 - 7) \times 11 + 16 \times 7$ or $77 + 17.5 + 66 + 112$ or 272.5	M1dep	may combine first two areas as $0.5 \times (16 + 11) \times 7$ or 94.5
	272.5	A1	
	Alternative method 3		
	20×16 or 320 or $0.5 \times 7 \times 5$ or 17.5 or $(20 - 7 - 7) \times 5$ or 6×5 or 30	M1	
	$20 \times 16 - 0.5 \times 7 \times 5 - (20 - 7 - 7) \times 5$ or $320 - 17.5 - 30$	M1dep	
	272.5	A1	

10(b)	Alternative method 1		
	their 272.5×14 or 3815	M1	
	their $3815 \div 5$ or 763	M1dep	
	their $763 \div 25$	M1dep	
	30.52	A1ft	ft their 272.5
	31	A1ft	ft their 30.52 rounded up to the nearest whole number
	Alternative method 2		
	$14 \div 5$ or 2.8	M1	
	their $272.5 \times$ their 2.8 or 763	M1dep	
	their $763 \div 25$	M1dep	
	30.52	A1ft	ft their 272.5
	31	A1ft	ft their 30.52 rounded up to the nearest whole number

10(c)	$6 \times 100 \div 200$ or $10 \times 100 \div 200$ or $4 \times 100 \div 200$ or $2 \times 100 \div 200$	M1	implied by any correct length to scale may be seen beside table
	Climbing frame (3 cm by 3 cm) and swing set (5 cm by 2 cm) and 2 rockers (each 1 cm by 1 cm) drawn to correct scale	A2	A1 any one of these items drawn to correct scale
	Sandpit drawn with radius 3 cm	A1	
	All items drawn to correct scale and labelled	A1	
	Additional guidance		
	Mark the final grid unless blank		
	Where shapes are drawn freehand, withhold first accuracy mark awarded only		

11(a)	Alternative method 1		
	230×14.25 or $3277.5(0)$	M1	
	their $3277.5(0) + 1660 + 400 + 350$ or $5687.5(0)$	M1dep	
	their $5687.5(0) + 5000$ or $10687.5(0)$	M1dep	
	their $10687.5(0) \div 230$	M1dep	
	46.4...	A1	implied by a correctly rounded answer
	£46.50 or £47 or £50	B1ft	fit their price per ticket rounded up to the nearest 50p or pound or 5 pounds or 10 pounds
	Alternative method 2		
	$1660 \div 230$ or 7.22 or $400 \div 230$ or 1.74 or $350 \div 230$ or 1.52 or $1660 + 400 + 350$ or 2410	M1	
	$1660 \div 230 + 400 \div 230 + 350 \div 230$ or their 7.22 + their 1.74 + their 1.52 or $(1660 + 400 + 350) \div 230$ or their $2410 \div 230$ or 10.48	M1dep	
	$5000 \div 230$ or 21.75	M1dep	
	their $10.48 + 21.75 + 14.25$	M1dep	
	46.48	A1	implied by a correctly rounded answer
	£46.50 or £47 or £50	B1ft	fit their price per ticket rounded up to the nearest 50p or pound or 5 pounds or 10 pounds

11(b)	$97.5 \div 3.25$ or 30	M1	
	their 30×200 or 6000	M1	number of leaflets
	their $6000 \div 1000 \times 18$ or 108	M1	oe
	their $108 \div 100 \times (100 - 12.5)$	M1	oe 108×0.875
	94.50	A1	

11(c)	Alternative method 1		
	800×2 or 1600	M1	
	$110 \div$ their 1600×100 or 6.875(%)	M1dep	oe
	6.875(%) and Yes	A1	
	Alternative method 2		
	$110 \div 2$ or 55	M1	
	their $55 \div 800 \times 100$ or 6.875(%)	M1dep	oe
	6.875(%) and Yes	A1	
	Alternative method 3		
	800×2 or 1600	M1	
	their 1600×0.05 or 80	M1dep	oe
	80 and Yes	A1	
	Alternative method 4		
	$110 \div 2$ or 55	M1	
	800×0.05 or 40	M1dep	oe
	55 and 40 and Yes	A1	
Additional Guidance			
For M2A0 or M2A1 accept probabilities shown as corresponding decimals or fractions with a common denominator, eg 0.05 and 0.06875 or $\frac{40}{800}$ and $\frac{55}{800}$			
Condone decimal numbers as numerators, eg $\frac{1}{20}$ and $\frac{1.375}{20}$			

12(a)	$43 - 37$ or 6	M1	
	6 and Yes and Lower range	A1	
	Additional Guidance		
	Answer of Lower range with no working		M0A0

12(b)	$37 (\times 1) + 38 (\times 1) (+ (39 \times) 0) + 40 \times 4 + 41 \times 2 (+ 42 \times) 0) + 43 \times 4$ or $37 + 38 (+ 0) + 160 + 82 (+ 0) + 172$ or 489	M1	may be seen beside table
	their $489 \div 12$	M1 dep	
	40.75	A1	
	40.75 and Yes and Higher mean	A1ft	ft their mean with M2 scored
	Additional Guidance		
	Answer of Higher mean with no working		

12(c)	$\frac{1}{3} \times \frac{1}{3}$ calculates differences	M1	oe $(\frac{1}{3})^2$
	$\frac{1}{9}$	A1	oe fraction
	Additional Guidance		

13(a)	$\pi \times 4^2 \times 15$ or 240π or [753.6, 754.1]	M1	
	$\frac{100 - 10}{100}$ or $\frac{90}{100}$ or 0.9(0)	M1	
	their [753.6, 754.1] $\times \frac{100 - 10}{100} \times 0.83$	M1dep	dep on M2
	[562.9, 563.32]	A1	amount for one candle
	their [562.9, 563.32] $\times 2500$ or [1407 250, 1408 300] or their [562.9, 563.32] $\div 1000$ or [0.5629, 0.56332]	M1	
	their [1 407 250, 1 408 300] $\div 1000$ or their [0.5629, 0.56332] $\times 2500$	M1dep	dep on previous mark
	[1407, 1408.3]	A1ft	ft their amount for one candle

13(b)	9.6 ÷ 1.2 or 8	M1	
	9.6 – their 8 or (£)1.6(0)	M1	
	£1.60	A1	Condone £1.60p
	Additional Guidance		
	Working out 20% of 9.60, which gives an answer of 1.92 or 7.68		0

13 (c)	19410 – 11850 or 7560	M1	
	their 7560 × 0.2	M1	oe
	1512	A1	
	Additional Guidance		
	19410 × 0.2 or 3882		M0M1A0
	11850 × 0.2 or 2370		M0M1A0