

Percentages

Mark Scheme

Level	IGCSE
Subject	Maths
Exam Board	Edexcel
Topic	Number and Algebra
Sub Topic	Percentages
Booklet	Mark Scheme

Time Allowed: 58 minutes

Score: /48

Percentage: /100

Grade Boundaries:

A*	A	B	C	D	E	U
>85%	75%	70%	60%	55%	50%	<50%

Question Number	Working	Answer	Mark	Notes
1.	3380 ÷ 1.04 or 3250 or 1.04 ² or 1.0816		4	M1 or M2 for 3380 ÷ 1.04 ² oe
	3250 ÷ 1.04			M1
	3125			A1
		255		A1 cao
				Total 4 marks

Question	Working	Answer	Mark	Notes
2. (a)	$\frac{12}{100} \times 675$ oe or 81		3	M1 M2 for 675 × 1.12 oe
	675 + “81”			M1 (dep)
		756		A1 cao
(b)	23% of amount = 2162 or (1% =) $\frac{2162}{23}$ or 94 seen		3	M1 M2 for $\frac{2162}{23} \times 100$ oe
	“94” × 100 or 9400 or “94” × 77			M1
		7238		A1 cao
(c)	$\frac{40}{100} \times 1500$ oe or 600	OR 1500×0.6^3	3	M1 for eg $\frac{40}{100} \times 1500$ or 600
	$\frac{40}{100} \times (1500 - "600")$ = 360 $\frac{40}{100} \times (1500 - "600" - "360") =$ 216 1500 – “600” – “360” – “216”			M1 for completing method
				Accept (1 – 0.4) as equivalent to 0.6
		324		A1 cao
				Total 9 marks

Question	Working	Answer	Mark	Notes
3. (a)	$167.4 - 155 (= 12.4)$ "12.4" $\div 155 (= 0.08)$	8	3	M1 M1 dep A1 cao $167.4 \div 155 (= 1.08)$ "1.08" $- 1 (= 0.08)$ $167.4 \div 155 (= 1.08)$ "1.08" $\times 100 (= 108)$ If build up approach used, award M2A1 for correct answer, otherwise M0A0.
(b)	$\frac{125.4}{104.5} \times 100$ oe	120	3	M2 M1 for $\frac{125.4}{104.5} (= 1.2)$ or $104.5\% = 125.4$ or $1.045x = 125.4$ oe or 1.2 seen or 5.4 A1 If build up approach used, award M2A1 for correct answer, otherwise M0A0.
				Total 6 marks

Question	Working	Answer	Mark	Notes
4. <input type="checkbox"/> (a)	$133.3 - 87.3$ or 46 or $\frac{133.3}{87.3} (\times 100)$		3	M1 Difference for two given years
	$\frac{133.3 - 87.3}{87.3} (\times 100)$ or $\frac{46}{87.3} (\times 100)$ or $\left[\frac{133.3}{87.3} - 1 \right] (\times 100)$ or 0.527			M1 for difference divided by 87.3 oe
		52.7		A1 for answer rounding to 52.7
(b)	$1.2x = 133.3$ or $120\%x = 133.3$		3	M1 also allow $120\% = 133.3$ or $\frac{133.3}{120}$ or $\frac{133.3}{x} = 1.2$ or 1.11 ...
	$x = \frac{133.3}{1.2}$ or $x = \frac{133.3}{120} \times 100$			M1 oe
		111.1		A1 for answer rounding to 111.1
				Total 6 marks

Question	Working	Answer	Mark	Notes
5. (a)	0.15×270 oe (=40.5)			M1 M2 f 0.85 270 or $(1 - 0.15) \times 270$
	270 – "40.5"			M1 dep
		229.50	3	A1 accept 229.5
(b)	$13.50 \div 15$ (=0.9) or $100 \div 15$ (=6.6....)			M1 M1 for $13.5 \div 3$ (=4.5) (=5%) M2 for $13.5 \div 0.15$
	"0.9" \times 100 (=90) or "6.6..." \times 13.5(0)			M1 dep M1 for 4.5×20
		90	3	A1
				Total 6 marks

Question	Working	Answer	Mark	Notes
6 <input type="checkbox"/> <input type="checkbox"/>	Working with all 12 boxes $12 \times 15 (=180)$ or $12 \times 12 (=144)$			M1 for correct total cost or correct total number of drinks (either may appear as part of another calculation)
	$12 \times 12 \times \frac{3}{4} \times 1.5$ oe (=162)			M1 for revenue from all full price drinks sold
	$12 \times 15 \times 1.15$ oe (=207) or 180×0.15 oe (=27)			M1 for total revenue or total profit
	$\frac{"207"- "162"}{36}$ or $\frac{45}{36}$ or $\frac{"27"+ ("180"- "162")}{36}$			M1 dep on M3
		1.25	5	A1 cao
				Total 5 marks
	Alternative – working with one box $15 \div 12 (=1.25)$ or $12 \times \frac{3}{4} (=9)$			M1 for price of 1 drink or number of full price drinks
	$12 \times \frac{3}{4} \times 1.5$ oe (=13.5)			M1 for revenue from all full price drinks sold
	$15 \times 1.15 (=17.25)$			M1 for total revenue from one box
	$\frac{"17.25"- "13.5"}{3}$ or $\frac{3.75}{3}$			M1 dep on M3
		1.25	5	A1 cao
				Total 5 marks

Question	Working	Answer	Mark	Notes
7. (a)	153 – 125 or 28 "28" ÷ 125 (= 0.224)		3	M1 153 ÷ 125 (= 1.224) 153 ÷ 125 (= 1.224) M1dep "1.224" – 1 (= 0.224) "1.224" × 100 (= 122.4)
		22.4		A1 cao
(b)	$\frac{153}{85} \times 100$ or $\frac{153}{0.85}$ oe		3	M2 M1 for $\frac{153}{85}$ or 1.8 or 85% = 153 or $0.85x = 153$ oe
		180		A1
				Total 6 marks

Question	Working	Answer	Mark	Notes
8 (a)	$\frac{12}{100} \times 45 (=5.4)$ 45 – "5.4"		3	M1 or M2 for 45×0.88 oe eg $45 \times (1 - 0.12)$ (NB $45 \times (1 - 12\%)$ scores zero unless accompanied by a correct answer) M1 Dep on correct method for 12% A1
		39.6(0)		
(b)	546 – 525 (=21) $\frac{'21'}{525} \times 100$		3	M1 546/525(=1.04) M1 Dep ("1.04" – 1) × 100 or 546/525 × 100 – 100 A1
		4		
				Total 6 marks