

Maths Paper 2

Mark Scheme



Functional Skills in Mathematics Level 2 – Mark scheme

Paper 2

Task 1 (non-calculator)	Process	Total mark	Mark allocation	Comments	P or U	Subject content
Question 1	Ordering the numbers	1	1 mark: 3, 4, 5, 9, 12, 18, 26, 27, 36	Do not accept reverse order	U	1
Question 2	Finding 14×26.40	1	1 mark: (£)369.60		U	13
Question 3	Finding $360 \div 24 = 15$	1	1 mark: 15		U	2
Question 4	Using the correct order of operations	2	1 mark: Correct first step e.g. $(33 \div 11)^2 = 9$	Any correct calculation that could be done first	U	12
	Finding an answer of 21		1 mark: 21		U	12
Question 5	Converting mixed fraction into improper fraction	3	1 mark: $1\frac{2}{5} = \frac{7}{5}$		P	7
	Identifying and putting both fractions over common denominator		1 mark: $\frac{7}{5} = \frac{28}{20}$ and $\frac{7}{4} = \frac{35}{20}$	Must have both fractions correct	P	7
	Adding fractions and converting to decimal		1 mark: $\frac{28}{20} + \frac{35}{20} = \frac{63}{20} = 3.15$		P	4
Question 6	Finding what Wilbur earned	3	1 mark: Wilbur earns $16 \times 8 + 40 = (£)168$	May be implied if 168 seen	P	15
	Finding what Joseph earned		1 mark: Joseph earns $28 \times 6 = (£)168$	May be implied if 168 seen	P	15
	Concluding correctly		1 mark: Helena is not correct as they earn the same amount.	"Helena is not correct" backed up by (£)168	P	15
Question 7	Finding the correct product	1	1 mark: 43.32		U	10
Question 8	Using the fact the triangle is isosceles	3	1 mark: Both of the remaining angles in the triangle are $(180^\circ - 30^\circ) \div 2 = 75^\circ$		P	22
	Using that there are 180° in a triangle		1 mark: The angle next to 75° in the quadrilateral is $180 - 75 = 105^\circ$		P	22
	Using that there are 360° in a quadrilateral		1 mark: The missing angle is $360 - 60 - 90 - 105 = 105^\circ$		P	22

Task 2	Process	Total mark	Mark allocation	Comments	P or U	Subject content
Question 9	Interpreting the scale	2	1 mark: Correct interpretation of the scale	e.g. side lengths of 7 cm and 6 cm seen	U	18
	Creating the scale drawing		1 mark: Correct rectangle drawn	Any 7 × 6 rectangle drawn on the grid (see figure 1)	U	18
Question 10	Stating the reason	1	1 mark: The map would be unsuitably long	Words to the effect of “too big”	U	18
Question 11	Substitution	4	1 mark: $(3 \times 4 \times (100 - 80) + 240) \times 1.2$ or $(3 \times 4 \times (100 - 80)) \times 1.1 + 240$	Correct substitution seen in at least one formula	P	3
	Finding cost last year and this year		1 mark: (£)576 last year and (£)504 this year	May be implied if 576 and 504 seen	P	3
	Calculating percentage change		1 mark: $\frac{576-504}{576} \times 100\%$	Allow FT for their costs	P	6
	Finding correct percentage change		1 mark: 12.5%	Allow FT for their costs	P	5
Question 12	Finding the number of cubes along one side of the box	5	1 mark: Finds the number of cubes that fit along one side of the box	1 cube fits on the 3 cm side 2 cubes fit on the 5 cm side 4 cubes fit on the 8 cm side May be implied if 8 cubes seen	P	20
	Finding the number of cubes along all sides of the box		1 mark: Finds the number of cubes that fit along all sides of the box		P	20
	Finding the number of cubes that fit in the box		1 mark: $1 \times 2 \times 4 = 8$ cubes per box		P	17
	Finding how much profit one cube makes		1 mark: Profit per cube = $5.50 - 1.54 = (\pounds)3.96$	Accept alternate method	P	13
	Finding the total profit of the box		1 mark: Total profit = $8 \times 3.96 = (\pounds)31.68$	Allow FT for their number of cubes	P	13
Question 13	Finding one side length	3	1 mark: Side length from <i>A</i> to <i>B</i> is 3 units		P	19
	Finding the other side length		1 mark: Other side is $12 \div 3 = 4$ units long		P	19
	Finding the coordinates of <i>C</i> and <i>D</i>		1 mark: (5,3) and (5,0) or (–3,3) and (–3,0)	Coordinates must be in correct pairs e.g. do not accept (5,3) and (–3,0)	P	19

Task 3	Process	Total mark	Mark allocation	Comments	P or U	Subject content
Question 14	Calculation for speed	2	1 mark: $750 \div 60$	Could be represented as speed, distance, time triangle	U	15
	Finding the correct speed		1 mark: 12.5 metres per second	Units not required	U	15
Question 15	Calculating the mean	5	1 mark: Mean for Main Street, Cranmer to Main Street, Markham: $\frac{53 + 49 + 45 + 45 + 49 + 53}{6} = 49 \text{ min}$	Accept any sensible method	P	25
	Calculating the range		1 mark: Range for Main Street, Cranmer to Main Street, Markham: $53 - 45 = 8 \text{ min}$		P	25
	Calculating the mean		1 mark: Mean for Cranmer Train Station to Markham Junction: $\frac{36 + 32 + 28 + 28 + 32 + 36}{6} = 32 \text{ min}$	Accept any sensible method	P	25
	Calculating the range		1 mark: Range for Cranmer Train Station to Markham Junction: $36 - 28 = 8 \text{ min}$		P	25
	Comparative statements on mean and range		1 mark: Main Street, Cranmer to Main Street, Markham is longer; both journeys equally consistent	Statement must draw from mean and range to get the mark	P	25
Question 16	Finding the probability of the bus arriving on time.	1	1 mark: $1 - 0.4 = 0.6$	Accept any equivalent fraction, decimal or percentage	U	27
Question 17	Conversion into metres or kilometres	3	1 mark: Convert $6 \text{ km} = 6000 \text{ m}$ or $750 \text{ m} = 0.75 \text{ km}$	Accept alternate conversions for alternate method	P	11
	Finding scale factor for proportion		1 mark: Scale factor is $= 6000 \div 750 = 8$	Accept $6 \div 0.75 = 8$	P	11
	Finding bus ticket price		1 mark: $0.90 \times 8 = (\text{£})7.20$		P	11
Question 18	Creating the table	4	1 mark: Table drawn with correct format	See figure 2	P	26
	Adding data given in question		1 mark: 30, 15, 20 and 2 in correct place		P	26
	Inferring data		1 mark: Three of 5, 8, 10, 17 and 13 correct		P	26
	Completing the table		1 mark: Table entirely correct		P	26

Task 4	Process	Total mark	Mark allocation	Comments	P or U	Subject content
Question 19	Converting to kg	1	1 mark: 8.172 kg	Units required	U	14
Question 20	Ordering the amounts	2	1 mark: Amounts put in order 0, 0, 0, 0, 1, 1, 1, 2, 2, 2, 4, 4, 6, 6, 6	Accept reverse order May be implied if 2 seen	U	23
	Finding the median		1 mark: Median = 2 (pints)	Units not required	U	23
Question 21	Calculating the total	3	1 mark: $19 + 13 + 49 + 12 + 7 = 100$	May be implied if 100 seen	P	8
	Identifying the fraction		1 mark: $\frac{12}{100}$		P	8
	Simplifying the fraction		1 mark: $\frac{3}{25}$		P	8
Question 22	Applying the offer	3	1 mark: 4 pints: $1.60 \times 0.9 = (£)1.44$ 6 pints: $2.20 \times 0.96 = (£)2.11(2)$	Accept everything rounded to two decimal places	P	13
	Finding the cost per pint		1 mark: 4 pints: $£1.44 \div 4 = £0.36$ per pint 6 pints: $£2.11(2) \div 6 = £0.35(2)$ per pint	Accept everything rounded to two decimal places	P	13
	Comparative statement		1 mark: 6 pints is the best buy.	Allow alternate wording	P	13
Question 23	Creating and filling in extended table	6	1 mark: Correct midpoints and products of midpoints and frequencies	See figure 3	P	24
	Finding relevant column totals		1 mark: Correct totals		P	24
	Calculating the estimate of the mean		1 mark: Mean is $700 \div 100 = 7$	Allow FT for their midpoints and frequencies	P	24
	Drawing a line of best fit		1 mark: Sensible line of best fit drawn on scatter graph	Accept any sensible line of best fit	P	28
	Using the line of best fit to find the profit		1 mark: Line drawn up from their mean and across from line of best fit at their mean	Construction lines must meet their line of best fit correctly	P	28
	Finding the estimated profit		1 mark: Correct answer from their line of best fit, in range (£)300000 to (£)350000	Award only if the line of best fit is sensible and the answer falls within the range £300000 to £350000 Allow FT for their mean	P	28

Figure 1

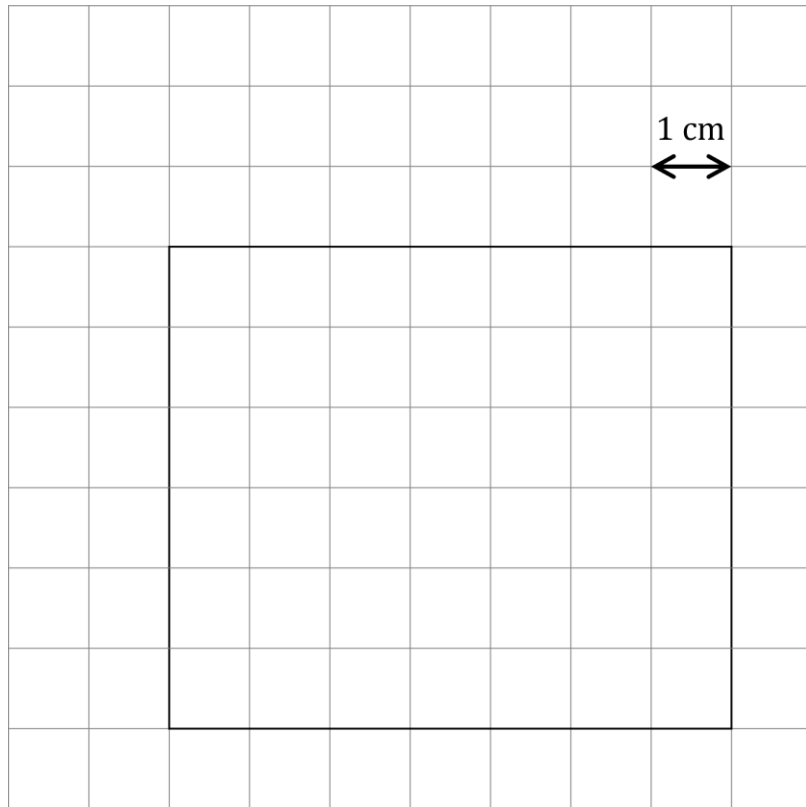


Figure 2

	Bus	Not Bus	Total
Late	15	2	17
Not Late	5	8	13
Total	20	10	30

Figure 3

No. of bags	Frequency	Midpoint	Frequency \times Midpoint
0-2	4	1	4
3-5	32	4	128
6-8	34	7	238
9-13	30	11	330
Total	100		700

