Functional Skills Mathematics Level 2 – Practice Mark Scheme FSM208P

Section A	Process (Task description)	Total mark	Mark allocation	Comments	PS or US	Subject content
Question 1	Method to subtract fractions	2	**1 mark:** Correct method to subtract fractions, eg Common denominator found $\frac{13}{6} - \frac{3}{5} = \frac{65}{30} - \frac{18}{30}$ OR Butterfly method OR Any valid method		US	7c
	Correct subtraction of fraction		**1 mark:** Correct answer shown, ie $1\frac{17}{30}$	Accept $\frac{47}{30}$	US	7c
Question 2	Express probability as percentage	1	**1 mark**: Correct percentage given, ie 16.66…	Accept 16.67, 16.6, 16.7, 17	US	27c
Question 3	Order positive and negative numbers	1	**1 mark:** Correct order shown, eg 6.3, 2.9, -0.5, -4.7, -9.8, -14.2	Accept smallest to largest	US	1b
Question 4	Multiply decimals	1	**1 mark:** Correct answer, ie 10.8905	Accept rounded answers, eg 10.891, 10.890, 10.9	US	10c
Question 5	Calculate the mode	1	**1 mark:** Correct mode shown, ie 18560		US	23b
Question 6	Method to calculate mean averages for comparison	4	**1 mark:** Method to calculate mean for Laila, eg (51.03 + 60.91 + 59.2 + 52.3 + 52.7) ÷ 5 = (55.228)	Award if 57.232 or 55.228 seen	PS	25
	Correct means calculated		**1 mark:** Correct mean for Laila, ie 55.228	Allow rounded values to 2dp	PS	25
	Correct ranges calculated		**1 mark:** Correct range for Laila, ie (60.91 – 51.03) = 9.88	Allow rounded values or to 2dp	PS	25

	Appropriate decision based on calculations		**1 mark:** Swimmer chosen with valid reason, eg Jandu because there is less variation (or more consistency) in his swim times than Laila. Laila because her mean average swim time is faster than Jandu.	Do not accept simple explanations eg-Laila has a lower mean or Jandu has a lower range. Do not award if not supported by calculations	PS	25
Question 7	Method to calculate percentage of amounts	2	**1 mark:** Method to calculate 4% of total, eg Finds 1% and multiplies by 4 OR 0.04 × 98200 (=3928) OR Any other method	May be implied if £94272 OR £3928 seen	PS	5a
	Correct profit calculated		**1 mark:** Correct profit after giving to charity, ie (98200-3928) = (£)94272		PS	5a
Question 8	Calculate amount of landfill waste	3	**1 mark:** Correct amount of waste sent to landfill, ie (528221.983 - (343322.142 + 130502.784)) = **54397.057** (tonnes)		PS	2
	Calculate difference in landfill waste		**1 mark:** Correct amount of extra waste sent to landfill, ie (54,397.057- 53394) = **1003.057** (tonnes)	Award if 1003.1 seen	PS	2
	Correct rounding of answer		**1 mark:** Correct amount of extra waste sent to landfill to 1 tenth of a tonne, ie 1003.1		PS	9b

Section B	Process (Task description)	Total mark	Mark allocation	Comments	PS or US	Subject content
Question 9	Method to calculate density	2	**1 mark:** Correctly substitutes into formula, ie D= 53 ÷ 6.6	May be implied Accept 53 = d × 6.6 OR 6.6= 53 ÷ d Award if 8.03 seen	US	15b
	Correct density calculated		**1 mark:** 8.03…	Accept 8	US	15b
Question 10	Express probability as a fraction	1	**1 mark:** $\frac{2}{25}$		US	27a
Question 11	Calculate using rates of pay	6	**1 mark:** Correct salary per annum for employee 2, year 2, ie (1978.25 × 12) = (£)23739		PS	15c
	Method to calculate median average		**1 mark:** Method to calculate median of yr 2, ie (13060.50 + 17539.67) ÷ 2 OR Other valid method	May be implied if £15300.085 seen.	PS	23a
	Correct median calculated		**1 mark:** Correct median for year 2 calculated, ie (£)15300.09	Accept 15300.085	PS	23a
	Method to calculate percentage change		**1 mark:** Method to calculate percentage difference, eg (15300.09 - 14070.28) ÷ 14070.28 × 100 = (8.74%) OR Any other method	Allow FT for their median values Accept finding 7% added to original 1.07 × 14070.28 = (£15055.1996)	PS	6
	Correct percentage change calculated		**1 mark:** Correct percentage difference calculated, ie 8.74%	Allow rounded answers Allow correct salary at 7% increase- £15055.20	PS	6
	Correct decision reached with reason		**1 mark:** Correct decision with reason, eg No, Hannah is not correct as the average salary has increased by nearly 9% OR No, because a 7% increase would be an average of £15055.20 OR No with valid reason		PS	6

Question 12	Calculate using ratio and number of parts	4	**1 mark:** Method to calculate number of parts in ratio per tray or per 5 trays, eg 42 ÷ 6 = (7 quarters) 42 × 5 ÷ 6 = (35 quarters)	Accept if works in whole sandwiches, eg 42 ÷ 4 ÷ 6 = 1.75 whole sandwiches per part of ratio per tray or 8.75 per order	PS	11a
	Method to work out number of sandwiches in given ratio		**1 mark:** Method to calculate number of granary sandwich quarters per tray or per 5 trays from given ratio 2 × 7 = (14 quarters) OR 2 × 35 = (70 quarters) OR Build up method OR Any other method	Award if works in whole sandwiches, eg 1.75 × 2 = 3.5 OR 8.75 × 2 = 17.5	PS	11a
	Method to calculate how many whole sandwiches are needed		**1 mark:** Method to calculate correct number of whole granary sandwiches needed to fill 5 trays, ie 70 ÷ 4 = (17.5) OR 14 ÷ 4 × 5 = (17.5)	Allow FT	PS	11a
	Correct number of whole sandwiches		**1 mark:** Correct number of whole granary sandwiches needed, ie 18		PS	11a
Question 13	Method to calculate probability of losing both games	2	**1 mark:** Method to calculate probability of losing hook-a-duck and wheel of fortune, eg 7/8 × 4/5 = (28/40) OR 0.875 × 0.8 = (0.7) OR Any other method	May be implied if 0.6125 or 49/80 seen Accept if calculated 1/8 × 1/5 correctly	PS	26
	Correct probability found		**1 mark:** Correct probability, ie 0.7 OR 28/40 OR 7/10	Accept 14/20	PS	26
Question 14	Draw 2 dimensions correctly	2	**1 mark:** Two correct dimensions drawn, ie 8cm, 3cm, 3cm	Do not award for 2d shape drawn	US	21
	Correct 3D shape drawn		**1 mark:** Fully correct representation of the cuboid 8cm x 3cm x 3cm	Accept drawing from any angle	US	21
Question 15	Use a conversion graph	1	**1 mark:** 16lbs	Allow +/- 0.1	US	14b

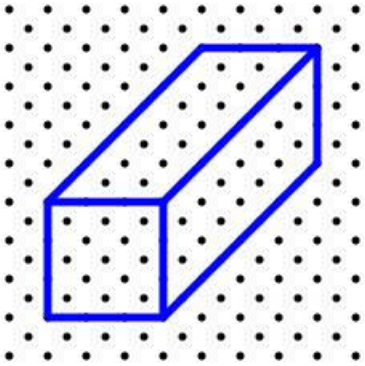|						
Question 16	Calculates cost of loan amount	3	**1 mark:** Correct total loan amount before interest, ie (24500 - (15200 + 3000)) = (£)6300		PS	13b
	Method to calculate loan amount plus interest		**1 mark:** Method to calculate the total amount repayable including interest, eg $6300 \times 1.041 = (6558.30)$ OR $(4.1 \div 100 \times 6300) + 6300 = (6558.30)$ OR Any other method	Allow FT	PS	13b
	Correct repayment per month		**1 mark:** Correct monthly payment, ie $(6558.3 \div 12) = (£)546.53$	Accept 546.52	PS	13b
Question 17	Make substitution into given formula	3	**1 mark:** Substitutes values into formula, ie $V = 24500 \times 0.92^2$		PS	3
	Evaluate formula correctly		**1 mark:** Correctly calculates van value after 2 years, ie $(0.92 \times 0.92 \times 24500) = (£)20736.80$	Accept 20736.8	PS	3
	Correct value lost after 2 years' ownership		**1 mark:** Correct value lost, ie $(24500 - 20736.80) = (£)3763.20$	Accept 3763.2	PS	3
Question 18	Method to convert between metric and imperial units	6	**1 mark:** Method to convert at least one dimension from ft to m, eg $13.9 \times 0.3048 = (4.23672m)$ OR $5.8 \times 0.3048 = (1.76784m)$ OR $6.6 \times 0.3048 = (2.01168m)$ OR Accept converting dimensions of pipe into ft, eg $148 \div 1000 \div 0.3048 = (0.485\ldots ft)$ $3600 \div 1000 \div 0.3048 = (11.811\ldots ft)$	Award if 4.23672m, 2.01168m, 1.76784m OR 0.485…ft, 11.811...ft seen	PS	14a
	Correct conversion from metric to imperial/imperial to metric		**1 mark:** Correct conversion of at least one dimension for van or pipe, ie 4.23672m, 1.76784m, 2.01168m OR 0.485…ft, 11.811…ft	Units not required Allow rounded values	PS	14a
	Correct method to calculate number of pipes along L, W or H		**1 mark:** Correct method to calculate how many pipes fit along the length, width or height of van, eg Length $4.23672m \div 3.6m = (1.1768\ldots)$ OR 13.9ft $\div 11.811 = (1.1768...)$ OR	Award for rounded dimensions for van length, width and height Allow FT	PS	10d

			Width 1.76784m ÷ 0.148m= (11.944...) OR 5.8ft ÷ 0.485ft = (11.958...) OR Height 2.01168 ÷ 0.148 = (13.592…) OR 6.6ft ÷ 0.485 = (13.608.) OR Repeated subtraction method OR Any other method	Do not award if attempt to divide length of pipe by width or height of van		
	Correct number of pipes along L, W, H of van		**1 mark:** Correct number of pipes along length, width and height of van, ie 1 × 11 × 13	Do not allow decimal values or rounded up values	PS	17a
	Correct total number of pipes that can fit in new van		**1 mark:** Correct number of pipes calculated, ie (1 × 11 × 13) = 143	Award if 52 seen	PS	17a
	Correct difference between old and new van's storage capacity		**1 mark:** Correct difference between old and new van storage calculated, ie (143 - 91) = 52 more pipes in new van		PS	17a
Question 19	Draws appropriate scale for data and paper size	3	**1 mark:** Appropriate scale used for paper size, eg, Y axis - 4 small increments = 5°OR Any other suitable scale		US	28a
	Data points plotted correctly		**1 mark:** Data points plotted correctly on diagram.	Allow 1 square error margin if hand drawn	US	28a
	Labelled graph/diagram correctly		**1 mark:** Diagram is labelled correctly, eg Appropriate title, y axis label and x axis label	Ignore spelling errors	US	28a

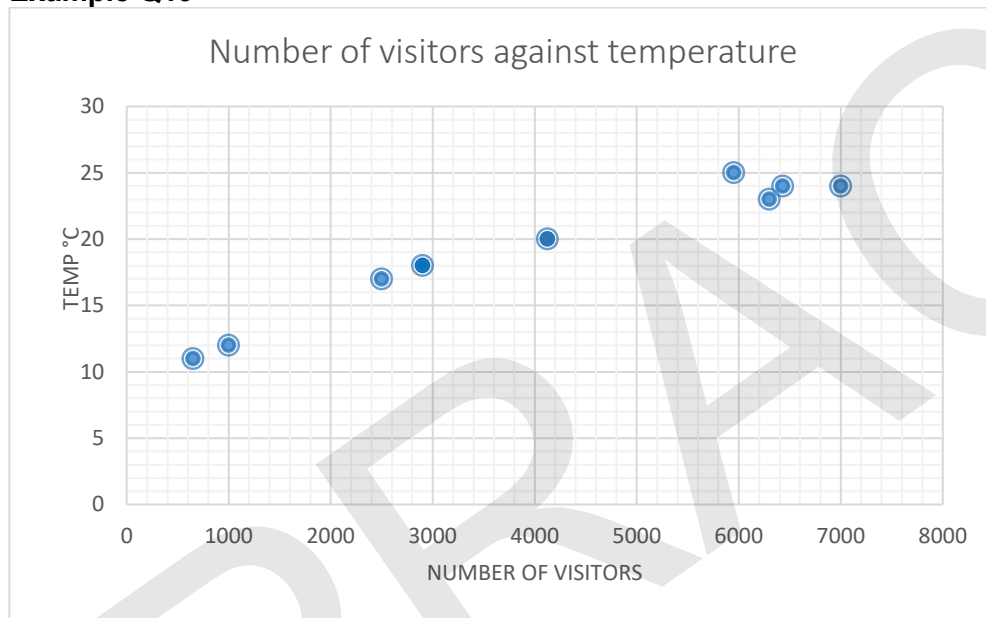|						
Question 20	Correct calculation of interest on one account	5	**1 mark:** Correct amount of interest for 1 year of Tobias's account or total interest on Jo's account, ie Tobias's account- (9000 × 0.0286) = (£)257.40 OR Jo's account- (9000 × 0.047) = (£)423	Award if 9423 OR 9257.40 seen	PS	13a
	Method to calculate Tobias's account balance after 3 years		**2 marks:** Correct method to calculate compound interest after 3 years, eg 9000 × 1.0286^3 =(9794.50) OR Amount after year 1 9000 +257.40 = 9257.40 plus Amount after year 2 9257.40 + 264.76164 = 9522.16164 plus Amount after year 3 9522.16164 + 272.33….= 9794.495…. OR Any other method	Allow rounded values Award 1 mark for correct amount after 2 years Award 2 marks if 9794.50 OR £9794.49seen	PS	13a
	Correct total amount for Tobias's account		**1 mark:** Correct total amount for Tobias's account after 3 years, ie (£) 9794.50	Allow 9794.49	PS	13a
	Correct total for both accounts		**1 mark:** Correct decision and difference given, ie Tobias account AND £371.50		PS	13a
Question 21	Correct area of trapezoid with 2 right angles	3	**1 mark:** Correct area of extension calculated, ie (16 - (0.5 × 4 × 0.89)) = 14.22(m^2)		PS	16b
	Method to calculate area of extension as % of whole area		**1 mark:** Correctly calculated %, eg 14.22 ÷ 76.67 × 100 = 18.5% OR 76.67 x 0.2 =15.334 Any other method	Allow FT for incorrect area Accept 19%	PS	5b
	Correct reason given		**1 mark:** Yes, because the extension will be 18.5% of the total floor area which is below 20% Yes because 20% is 15.344 square metres and extension is less than this at 14.22 square metres		PS	5b
Question 22	Method to calculate how many builders needed for 9 days	2	**1 mark**: Method to calculate builders required, eg 3 × 21 ÷ 9 = (7 builders) OR Any other valid method		PS	11c

	Correct number of extra builders		**1 mark:** Correct number of extra builders, ie 4	Only award with corresponding calculations	PS	11c
Question 23	Method to calculate scale drawing dimensions from actual measurements	2	**1 mark**: Method to calculate one dimension of the window or distance to the ground, eg 170 ÷ 40 = (4.25) OR 110 ÷ 40 = (2.75) OR 120 ÷ 40 = (3) OR at least one dimension drawn to correct scale on diagram	Allow conversion in m	PS	18b
	Accurate drawing of window at correct height		**1 mark:** Window added to diagram 4.25 squares by 2.75 squares at least 3 squares from the ground	Allow window either portrait or landscape	PS	18b

Example Q14

Example Q19

Number of visitors against temperature

TEMP °C

NUMBER OF VISITORS

Annotation notes:

Annotation	Meaning
US	Underpinning skills
PS	Problem solving skills
FT	Follow through
(…)	Information that is not required for the mark point