

Exemplar Student answers with examiner comments

About this booklet

This booklet has been produced to support mathematics teachers delivering the new Functional Skills Mathematics specification (first assessment summer 2019).

The booklet looks at questions from the Retired Set 6 which is available on the web as a practice paper. It shows real student responses to these questions, and how the examining team follow the mark schemes to demonstrate how the students would be awarded marks on these questions.

How to use this booklet

Our examining team have selected a student on the pass mark. Following each question, you will find the mark scheme for that question and then the student response with accompanying examiner comments on how the mark scheme has been applied and the marks awarded, and on common errors for this sort of question.



	SECTION A	1 0
	Answer ALL questions. Write your answers in the spaces provided.	0
1	Kate uses a machine to make toys.	
	She makes	
	 800 toys in one hour toys for 6 hours each day. 	· · · · ·
	Kate checks 5% of the toys she makes in a day for any faults.	
	How many toys does Kate check in a day?	
	800	(3)
	ex6=4800	
4	0.00 .0	
2		
8		
	UD5	toys
	(Total for Question 1 is 3 ma	arks 1



PMAT1/N06							
Question	Process	Mark	Mark Grid	Evidence			
Q1	Begins to work with total number of toys or percentage Full process to find total number of toys checked	1 or 2 or	A AB	800 × 6 (=4800) OR 800 × 5 ÷ 100 (=40) oe *4800' × 5 ÷ 100 (=240) oe OR *40' × 6 (=240)			
	Accurate figure	3	ABC	240			
	Total marks for question	3					

Examiner comments

1. 1 mark.

This learner works out the number of toys made in a 6-hour day. **1 mark**

No attempt is made to work with the 5% and so no more marks can be awarded.



(a) Write 0.3 as a fraction.	(1
	3/10
	1 (B) BO
	4 10 100
	3
b) Work out 1.6 × 1000	(1)
	16000
c) Write 19,075 correct to 1 decimal place.	
	(1)
	19
	7
	(Total for Question 2 is 3 marks



Question	Process	Mark	Mark Grid	Evidence
Q2(a)	Accurate figure	1	A	$\frac{3}{10}$ oe
Q2(b)	Accurate figure	1	В	1600
Q2(c)	Accurate figure	1	С	19.1
	Total marks for question	3		·

Examiner comments

2a) The correct answer is seen. 1 mark

2b) The correct answer is seen. 1 mark

2c) The number is not rounded correctly to 1 decimal place. This has been rounded to the nearest whole number. **0 marks**







Question	Process	Mark	Mark Grid	Evidence
Q3(a)	Begins to work with operators	1 or	Α	17 – 3 (=14) OR 4 × 4 (=16)
	Full process to find accurate figure	2 or	AB	'14' ÷ 2 + '16' (=23)
	Accurate figure	3	ABC	23
Q3(b)	Valid reverse calculation check	1	D	Valid check, e.g. 23 – 7 = 16
	Total marks for question	4		

Examiner comments

3a) **1 mark**

This is an example of BODMAS/BIDMAS

The learner begins correctly either 17-3 = 14 or 4 squared is 16 is enough for the first mark.

The second method mark is for a complete process and this leaner does not carry out the process in the correct order.

The 14 must be divided by 2 before the 26 can be added on.

3b) **0 mark**

This is a checking mark.

14 + 3 = 17 is one example that would score the mark.

Note a reverse calculation is required.

The answer must be given and must be accurate. e.g. 14 + 3 = 16 would NOT score the mark, neither would 14 + 3







Question	Process	Mark	Mark Grid	Evidence
Q4	Process to find a missing length	1	Α	9-3 (=6) or 7-5 (=2)
	Process to find one relevant area	1 or 2 or	B BC	9 × 7 (=63) or 3 × 7 (=21) or 9 × 5 (=45) or '6' × 5 (=30) or '2' × 3 (=6) or '6' × '2' (=12) '63' - '12' (=51) or '21' + '30' (=51) or '45' + '6' (=51)
	Accurate figure	3	BCD	51
	Total marks for question	4		

Examiner comments

4) **4 marks**

A compound area is required.

This learner shows the formula for the area of a rectangle, this is not required but it is helpful.

9 x 5 is enough for the first mark, one relevant area found. (Mark B on the scheme).

The first mark is implied by the correct use of 2, a missing length is found and used without the calculation being shown.

The full process is seen at the point of 45 + 6.

Accuracy is awarded for 51.







PMAT1/C	PMAT1/C06							
Question	Process	Mark	Mark Grid	Evidence				
Q1	Process to convert at least one time Full process to work with time (may not all be converted) Valid decision with accurate figures	1 1 or 2	A B BC	e.g. 0.5 × 60 (=30) or 40 + 60 (= $\frac{2}{3}$) or $\frac{3}{4}$ × 60 (=45) May be seen or implied in subsequent working e.g. 5 (hrs) 30 (mins) + 40 (mins) + '3 (hrs) 45 (mins)' (=9 hrs 55 mins) OR '600' - '225' - '330' - 40 (=5 mins) No AND 9 (hrs) 55 (mins) oe OR No AND 5 (mins shorter)				
	Total marks for question	3						

Examiner comments

Q1) 0 marks.

This question tests addition of time.

There is a need to convert three quarters of an hour into minutes or 0.5 of an hour to minutes.

so 45 minutes or 30 minutes is enough for one mark.

Being able to convert a quarter of an hour, half an hour and three quarters of an hour into minutes is an essential skill and will allow learners to gain useful marks.

Here the 4 is not explained at all.





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Question	Process	Mark	Mark Grid	Evidence
Q2	Measures value of angle in "fish" sector	1	А	120° (± 2°)
	Works with proportion Full process to find the number of students	1 or 2 or	B BC	e.g. 360 + {angle} (=3) OR 360 + 180 (=2) OR 180 + 360 (=0.5) OR {angle} + 360 (=0.33) e.g. 180 + '3' (=60) OR {angle} + '2' (=60) OR {0.5' × {angle} (=60) OR
	Accurate figure from working	3	BCD	 (0.33' × 180 (=60) 60 Ft their angle NB This question requires working shown
	Total marks for question	4		

Examiner comments

Q2) 0 marks

No working is shown.

It is an OFQUAL requirement that some reasoning is shown in questions. This is problem solving attribute 6. In our papers we display when this is a strict requirement with the phrase ' You MUST show all your working. Centres should be aware of this and communicate this fact to learners.

Here the answer is correct but at no point does the learner show any working out.

Hence due to the rules of the specification this answer gains no marks.

Had there been working out shown we could have awarded the marks.





(Total for Question 3 is 5 marks



Question	Process	Mark	Mark Grid	Evidence
Q3	Uses consistent units	1	A	e.g. 2.6 or 4000 or 4500 or 17000 or 180 May be seen or implied in subsequent calculations
	Process to find perimeter of the field or works with the gap or the panel size	1 or	В	40 × 2 + 45 × 2 (=170) OR 40 - '2.6' (=37.4) oe OR 40 ÷ 1.8 (=22.22) or 45 ÷ 1.8 (=25) or '2.6' ÷ 1.8 (=1.44)
	Process to find total required length of fence panels or number of panels for at least 2 lengths	2 or	BC	e.g. '170' - '2.6' (=167.4) OR '170' ÷ 1.8 (=94.4) OR '22.22' + '25' (=47.22) or '25' × 2 (=50)
	Full process to find total number of fence panels required	3 or	BCD	e.g. '167.4' ÷ 1.8 (=93) OR '94.4' – '1.44' (=93) OR '25' × 2 + '22.22' × 2 – ('2.6' ÷ 1.8) (=93)
	Accurate figure	4	BCDE	93
	Total marks for question	5		

Examiner comments

Q3) 5 marks

The learner adds to show they are working correctly with perimeter.

There is a conversion of metres to centimetres and back again to metres.

The division by 1.8 is seen and the accurate figure given.

The conversion mark (first process mark) is awarded for just one conversion.

The second mark is awarded for the first addition.

The third process mark can be awarded when 17000 - 260 is seen.

The last process mark does require a full process.

Accuracy is awarded for 93 in this question.







Question	Process	Mark	Mark Grid	Evidence
Q4	Begins to draw a chart	l or	A	One of: Completes linear scale Correct labels on horizontal and vertical axes Accurate plotting
	Develops chart	2 or	AB	Two of: Completes linear scale Correct labels on horizontal and vertical axes Accurate plotting
	Fully correct chart	3	ABC	All of: Completes linear scale Correct labels on horizontal and vertical axes Accurate plotting Minimum labels (W)1, 2, 3, 4, week(s), (number of) books (sold)
	Total marks for question	3		

Example solution for Q4



Examiner comments

Q4) 3 marks

This is a fully correct bar chart.

The axes are labeled and the linear scale continued correctly. Each bar is drawn within the tolerance allowed.

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5	Joe sells cars. 1 Q05A He sold <u>840</u> cars last year. 1 Q05B 720 of these cars were petrol cars. 1 Q05C All the other cars he sold were electric cars. Joe writes a report for his manager. He states, "I sold 6 times as many petrol cars as electric cars last year."
	Is this statement correct? You must show your working. (3)
	\$404 840 - 720 = 120 $120 \times 6 = 720$ $120 \times 6 = 720$
	His correct the correct



Question	Process	Mark	Mark Grid	Evidence
Q5	Begins to work with total or multiplier	1 or	А	e.g. 840 - 720 (=120) OR 720 + 6 (=120) OR 840 + (6 + 1) (=120)
	Full process to find figures to compare	2 or	AB	e.g. '120' × 6 (=720) OR 840 - 720 (=120) AND 720 + 6 (=120) OR '120' + 720 (=0.166) AND 1 + 6 (=0.166) oe OR 840 + (6 + 1) (=120) AND 840 - 720 (= 120)
	Valid decision with accurate figures supported by working	3	ABC	e.g. Yes AND 720 (from '120' × 6) OR Yes AND 120 (from two correct processes) OR Yes AND 0.16(6) (from two correct processes) oe OR Yes AND 6 : 1 (from correct simplification of 720 : '120') NB This question requires working shown
	Total marks for question	3		

Examiner comments

Q5) 3 marks

A decision is required here.

It is seen in the final box.

This decision must be supported by working.

The learner has shown working in this question and so marks were awarded.

The difference is found and the use of 6 is appropriate to allow a comparison to be made.



The table shows the number of customers who had a haircut last week at the shop. 1 Q06C									
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	1 Q06D	
	58	64	49	73	89	96	103	1 Q06E 0 Q06E	
The price of a haircut was £8									
Next week Raphael will									
• inc	rease the	price of a h	aircut by 2	5%	0.00				
anhael ti	hinks his m	e mean daily i	ny number	t week will	be more ti	an £750			
		curr duny n	icome nex	a meen min	be more a	1011 27 50			
Is Rapha Show w	el correct? hy you thir	, nk this.							
25	5% of	- <u>1</u> 8						(6)	
~	5-10	018=	2			10			
2	5.10				842-	10			
Mor	nay	58							
Tue	sday					46			
Wed	Inesala	y 49		53	3277	= +0	60		
Thurs	saay 7	73			ACXI	0-7	60		
that	idaw.	q			101				
Sund	ay	103							
	/	532	-						
								- 2	



(Total for Question 6 is 6 marks)



Question	Process	Mark	Mark Grid	Evidence
Q6	Begins to work with mean	1 or	А	58 + 64 + 49 + 73 + 89 + 96 + 103 (=532) oe
	Full process to find the mean	2	AB	'532' + 7 (=76) oe Allow process to find mean income for marks A and B
	Begins to work with percentage	1 or	с	e.g. 8 × 25 + 100 (=2) oe OR {mean} × 25 + 100 (=19) oe OR *608* × 25 + 100 (=152) oe
	Full process to find percentage increase or difference	2	CD	e.g. 8 + '2' (=10) oe OR {mean} + '19' (=95) oe OR '608' + '152' (=760) oe OR 750 - '152' (=592) oe
	Process to find a total daily income or mean income or number of haircuts	1 or	E	e.g. {number of daily haircuts} × '10' or '76' × '10' (=760) OR '95' × 8 (=760) OR '76' × 8 (=608) OR 750 + '10' (=75)
	Valid decision with accurate figures	2	EF	e.g. Yes AND (£)760 OR Yes AND (£)608 and (£)592 OR Yes AND 75 and 76 (mean number of haircuts)
Total marks for question		6		

Examiner comments

Q6) 5 marks

This is a multi-step problem.

Note this learner chooses to increase the price of a hair cut by 25% first.

The working is clear and 8 + 2 is shown.

At this point the C and D mark can be awarded. The mark scheme is written such that C and D may be awarded independently of marks A and B.

A and B are awarded for the full process to work out the mean number of customers per day.

We see 76 x 10 and so the final process mark can be awarded.

The answer of 760 is correct BUT no decision is given. Hence the last mark cannot be awarded.

Learners should be reminded to check when decisions are required. Is Raphael correct? must be answered as this is complying with Problem solving attribute 4.

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Question	Process	Mark	Mark Grid	Evidence
Q 7	Full process to find volume	1 or	A	8 × 8 × 17 (=1088)
	Accurate figure	2	AB	1088
	Correct unit of capacity	1	с	cm ³
	Total marks for question			

Examiner comments

Q7) 1 mark

8 x 8 x 17 is enough for the first mark.

Unfortunately, an additional process is carried out.

The final answer in the answer box ix incorrect so the accuracy mark cannot be awarded.

The question does remind the learner to give units and they do not. Hence the independent unit mark cannot be awarded.



8	Anju works at a town hall. The town population is four hundred and seventy thousand and fifteen. Anju uses this rule to work out how many people in the town have a full-time job. town population \longrightarrow multiply by 0.6 \longrightarrow number of people with full-time job. Anju thinks 272 019 people in the town have a full-time job.	0 Q08A 1 Q08B 0 Q08C
	Is Anju correct? Show why you think this. $47015 \times 0.6 = 28,209$	(3)
_	(Total for Question 8 is 3 mark	e1



Question	Process	Mark	Mark Grid	Evidence
Q8	Correct figure	1	A	470015
	Full process to find figures to compare	1 or	В	{population} × 0.6 (=282 009) OR 272 019 + 0.6 (=453 365)
	Valid decision with accurate figures ft their population provided at least 5 digits	2	BC	No AND 282009 OR No AND 470015 and 453365
Total marks for question				

Examiner comments

Q8) 1 mark

The mark is given for using the formula correctly eg interpretation of multiply the 'town population' by 0.6

The initial error of not being able to write the number given in words as an accurate figure means that neither the first nor the last mark can be awarded.

Reading and writing of large numbers is a requirement of the specification and centres should have learners practice this skill.

House prices are often a good functional example for centres to use.

(Compare regions within the UK).







Question	Process	Mark	Mark Grid	Evidence
Q9	Begins to draw the bath	1 or	А	Rectangle with 2 of:
				side length 7 squares
				side length 4 squares
				against the back wall
				equal distance from the side walls
	Fully correct drawing for bath	2	AB	Rectangle with all of:
				side length 7 squares
				side length 4 squares
				against the back wall and equal distance from the side walls
	Begins to draw the sink	1 or	с	Square with 2 of:
	-			side length 2 squares
				against the side wall
				at least 4 square lengths from the doorway and the bath
	Fully correct drawing for sink	2	CD	Square with all of:
				side length 2 squares
				against the side wall
				at least 4 square lengths from the doorway and the bath
				NB rectangle and square do not need to be labelled
	Total marks for question	4		



Examiner comments

Q9) 1 mark

The bath is labelled on the diagram.

It is a rectangle, 1 square by 7 squares in size with the long side against the back wall and equidistant from each side walls.

This allows the award of the first mark BUT the lack of 4 squares for the width means that the second mark cannot be awarded.

No square is dawn on the gird, so marks C and D cannot be awarded.

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10 Here are some numbers. 0 Q10A 2752 -723 63.10 752 -724 378 -738 58.60 0 Q10B 0.0100 (a) Work out the range of these numbers. -42.47 - 17.3, -9.4, 4.69, 27.59, 39.8(2) -42.4, -14.3, -9.4, 4.6, 28.5, 39.8, 4.6, 586,631, +1 52 63.1-9.7=72.8 \$2.8 \checkmark (b) Show a check of your answer. (1) 63 t-q.fa 1+-93= x= ¥2.8 (Total for Question 10 is 3 marks



Question	Process	Mark	Mark Grid	Evidence
Q10(a)	Process to find the range	1 or	A	63.142.4 (=105.5) OR -42.4 to 63.1
	Accurate figures	2	AB	105.5
Q10(b)	Valid check	1	С	Valid check, e.g. 105.5 – 63.1 = 42.4 OR 106 – 63 = 43
Total marks for question				

Examiner comments

Q10) **0 marks**

No check is given.

Some crossed out work is seen but 72.8 is left and is judged as what the learner requires marking.





Ves He has enou manow (Total for Question 11 is 5

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Question	Process	Mark	Mark Grid	Evidence
Q11	Process to find required number of packs or cost per plate	1	А	90 ÷ 6 (=15) OR 3.55 ÷ 6 (=0.59)
	Process to work with fraction	1 or	В	e.g. 3.55 + 5 (=0.71) OR *53.25' + 5 (=10.65) OR *0.59' + 5 (=0.118)
	Full process to find discounted cost of a pack or a plate	2	BC	e.g. 3.55 - '0.71' (=2.84) OR '53.25' + 5 × 4 (= 42.6) oe OR '0.59' + 5 × 4 (=0.473) oe
	Full process to find figures to compare	1 or	D	[•] 2.84 [•] × [•] 15 [•] (=42.6) OR 45 ÷ 90 (=0.5) OR 3.55 × [•] 15 [•] (=53.25) OR 45 ÷ [•] 15 [•] (=3)
	Valid decision with accurate figure	2	DE	Yes AND (£)42(.6) OR Yes AND (£)0.5 and (£)0.4(73) OR Yes AND (£)3 and (£)2(.84)
	Total marks for question	5	1	

Examiner comments

Q11) 5 marks

The first step shown is to work with the fractional discount.

Working out one fifth and then subtracting is fine for the B and C marks.

The learner then takes the price per plate and multiples by 90, they seem to stop this method here.

However, the learner then divides 90m by 6 and can be awarded the A mark.

Everything is bought together with 15 x 2.84 and so the D mark can be awarded.

42.60 is seen and compared to 45 with a decision given indicating this, at this point the final mark can be awarded.

Total marks learner has achieved for the whole paper is 32 marks, which is the threshold pass mark for this retired set.

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