3748-620 Sample 4
Level 2 Functional Skills Mathematics

Candidate Name (First, Middle, Last)

Candidate enrolment number

DOB (DDMMYYYY)

Candidate signature

Assessment date (DDMMYYYY)

Centre number

Total marks	
Task	**Mark**
Total	

Length of assessment:
2 hours

You should have the following for this assessment

- a pen with black or blue ink
- a pencil and eraser for graph/diagram work
- a 30cm ruler
- graph paper
- a calculator
- a protractor.

General instructions

- There are **3** tasks to complete.
- Each task is worth 25 marks.
- You should spend an equal amount of time on each task.
- Read through each task carefully.
- The maximum marks available are shown for each question.
- Show your working out, you may get marks for it.
- Check your calculations.
- You may use a calculator.
- You may use a dictionary.

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Task 1 – Office accounts

There are 25 marks available for this task.
You should check all your work as you go along.

Introduction
This task is about checking office accounts.
The manager thinks there has been a mistake in the accounts.

To complete this task you will need to

- work out how much money is left to spend in December
- check invoices
- summarise your results in a table
- decide if the manager is correct.

You will need to check your calculations and review your work.

1A
The office has £5 000 to spend on stationery supplies for the year.
The accounts department makes a spreadsheet each month.

Accounts Department Spreadsheet for the Office

Month	Amount spent (£)	VAT (£)	Total cost (£)	Amount left (£)
				5 000.00
January	450.00	90.00	540.00	4 460.00
February	579.91	115.98	695.89	3 764.11
March	246.45	49.29	295.74	3 468.37
April	562.00	112.40	674.40	2 793.97
May	285.93	57.19	343.12	2 450.85
June	345.94	69.19	415.13	2 035.72
July	226.33	45.27	271.60	1 764.12
August	301.34	60.27	361.61	1 402.51
September	399.05	79.81	478.86	923.65
October	358.66	71.73	430.39	493.26
November	300.55	60.11	360.66	132.60
December				

Use the spreadsheet to find out the amount of money left at the end of November to spend in December.

Amount to spend in December £_____

The Office Manager thinks there has been a mistake.
There was nearly £500 left to spend at the end of October.
She thinks the total cost of stationery supplies for November was about £300

Work out how much money your manager thinks should be left to spend in December.

Show your working

Money your manager thinks should be left £_____

(2 marks)

1B
Use your answers from **1A** to estimate the difference between the amounts that the spreadsheet shows and how much your manager thinks should be left.

Give your answer to the nearest £10

Show your working

Estimated difference £_____

(2 marks)

1C
There were three orders in November.

This is the pricelist.

The more you buy, the cheaper the price you pay per item

Example:
9 packs of labels are £13.95 each

BUT
10 packs are only £12.95 each

Pens
Box of 12

Price each
£4.95

Buy one, get one free

Ring binders
Assorted colours

Quantity	Price each
1 – 9	£2.39
10 – 39	£1.99
40+	£1.65

Labels
Pack of 100 sheets

Quantity	Price each
1 – 9	£13.95
10 – 39	£12.95
40+	£11.95

Pads of paper
Lined 160 pages

Quantity	Price each
1 – 9	£2.99
10 – 39	£1.99
40+	£1.85

Plastic pockets
Pack of 100

Quantity	Price each
1 – 9	£1.89
10 – 39	£1.75
40+	£1.65

The supplier sends an invoice for each order.

Your manager has checked the first invoice and marked the correct values.

INVOICE 27219			**Invoice date: 08 November**
Item description	**Quantity**	**Price each (£)**	**Cost (£)**
Plastic pockets Pack of 100	**15 packs**	**1.75** ✓	**26.25** ✓
		Goods total	**26.25** ✓
		VAT 20%	**5.25** ✓
		Total to pay	**£31.50** ✓

Check the other two invoices to find out if the correct prices have been charged and if the costs and totals are correct.

Mark the invoices clearly to show the correct values and any incorrect values.

INVOICE 27294			**Invoice date: 14 November**
Item description	**Quantity**	**Price each (£)**	**Cost (£)**
Ring binders Assorted colours	**20**	**1.99**	**39.80**
Plastic pockets Pack of 100	**10 packs**	**1.75**	**17.50**
Pads of paper Lined 160 pages	**50 pads**	**2.99**	**149.50**
		Goods total **VAT 20%** **Total to pay**	**206.80** **41.36** **£248.16**

INVOICE 27326			**Invoice date: 21 November**
Item description	**Quantity**	**Price each (£)**	**Cost (£)**
Labels Pack of 100 sheets	**2 packs**	**13.95**	**27.90**
Pens Box of 12	**16 boxes**	**4.95**	**79.20**
		Buy one get one free offer	**-39.60**
		Goods total **VAT 20%** **Total to pay**	**67.50** **13.50** **£81.00**

Show your working

Correct amount for 14 November invoice 27294 £_____

Correct amount for 21 November invoice 27326 £_____

(8 marks)

1D

Check one of your calculations in **1C**.
Use a **different** method to the one you used originally.

Write your check here

(2 marks)

1E

Use information from the spreadsheet in **1A** and the three **correct** November invoices to work out how much is actually left to spend in December.

Show your working
Amount left to spend £ _____

(3 marks)

1F

Make a summary table to show the correct amounts for each invoice, the correct amount spent in November and the amount left to spend in December.

(4 marks)

1G

Explain whether or not you think your manager was right about the budget.

(1 mark)

1H

You were asked to check invoices, work out the correct amount of money left to spend and decide whether your manager was correct.

You need to think about **how well** you did the task.

Make **three** comments.

Think about

- any other information that you would have liked
- how sensible your answers were
- how well your methods worked
- anything you found difficult
- things you might do differently if you had to tackle a similar problem.

Comment 1

Comment 2

Comment 3

(3 marks)

Task 2 – New restaurant

There are 25 marks available for this task.
You should check all your work as you go along.

Introduction
This task is about setting up a new restaurant.

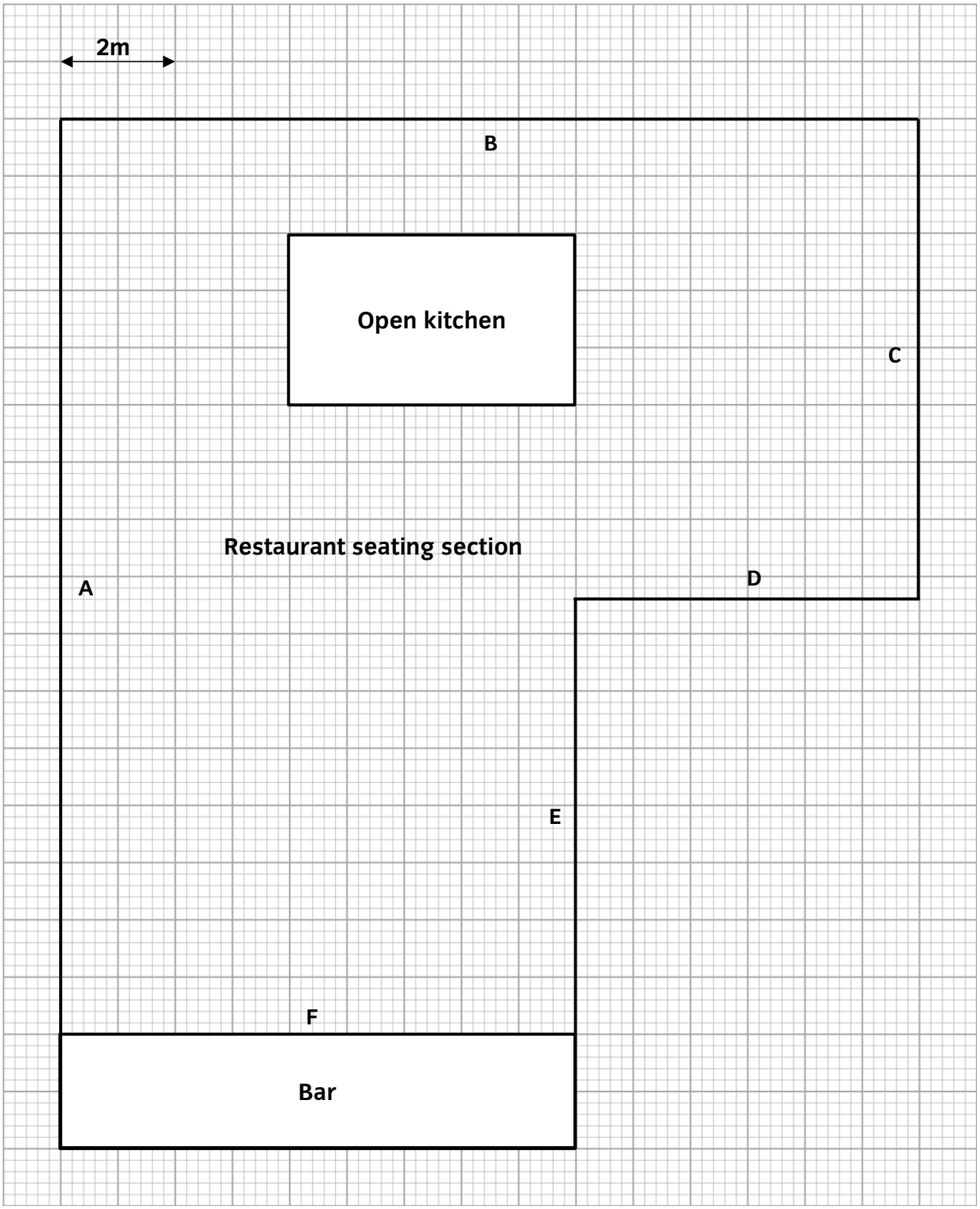
To complete this task you will need to work out

- dimensions from a scale plan
- floor areas
- the costs of some materials needed.

You will need to check your calculations.

2A

Here is a scale plan of the restaurant.



Use the plan to work out the lengths of the sides for the restaurant seating section.
Complete the table.

Space for working

Side	Length (metres)
A	
B	
C	
D	
E	
F	

(3 marks)

2B

You need to show a check of how you used the scale in **2A**.
Explain how you know that one of your dimensions is correct.

Write your check here

(2 marks)

2C

The bar and open kitchen will have a tiled floor, the restaurant seating section will have floor boards.

Work out the areas of the bar, the open kitchen and the restaurant seating section.

Show your working.

Area of the bar _____ **m^2**

Area of the open kitchen _____ **m^2**

Area of the restaurant seating section _____ **m^2**

(4 marks)

2D

The restaurant owner plans to have 30 seats.
Guidelines recommend that there should be 5 square feet of kitchen space per restaurant seat.

$1m^2$ = 10.76 square feet

Use your area for the open kitchen to work out if the restaurant can have 30 seats.
Explain your answer with supporting calculations.

Show your working

Can the restaurant have 30 seats? **Yes** ☐ **No** ☐

(Tick one box)

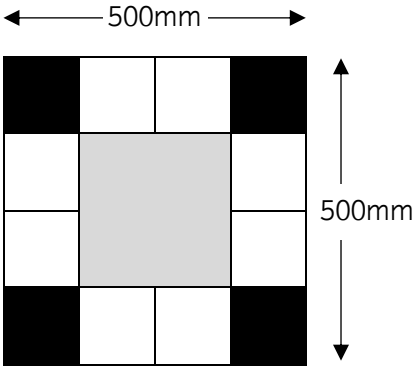
Explanation

(3 marks)

2E

The bar and open kitchen will have a tiled floor which uses this pattern.

Diagram not to scale



Price list (per tile)
Large grey tile.....£3.37
Small white tile £0.93
Small black tile.....£0.93

You need to buy enough tiles to cover the bar and open kitchen floor.
Work out the costs of the tiles.

Show your working

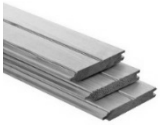
Tile	Quantity	Cost (£)
Grey tiles		
White tiles		
Black tiles		

(7 marks)

2F

The restaurant seating section will have wooden floorboards.

Floorboards
£32.49 per pack
Pack covers 1.76m^2



Work out the cost of the floorboards.

Show your working

Cost of the floorboards £ _____

(3 marks)

2G

You need to order the tiles and wooden flooring.
Use your calculations and answers from **2E** and **2F** to complete the order form.

FLOORING NATION – ORDER FORM		
Item	**Quantity**	**Cost (£)**
	Total	

(3 marks)

Task 3 – Water shortages

There are 25 marks available for this task.
You should check all your work as you go along.

Introduction
This task is about rainfall and water shortages.

To complete this task you will need to

- make statistical calculations using winter rainfall data
- present information in a graph
- determine whether water leakage targets have been met.

You will need to check your calculations.

3A

This table shows the total winter rainfall (December – February) in one UK region over 11 years.

Year	Winter rainfall (mm)
2000	239.6
2001	285.4
2002	208.8
2003	235.4
2004	229.0
2005	130.2
2006	134.7
2007	276.3
2008	208.4
2009	187.2
2010	236.6

Work out a suitable average for the winter rainfall in this region.

Tick the average you will use (Tick one box)

Mean ☐ **Median** ☐ **Mode** ☐

Show your working

Average _____

Explain why the average you used is the most suitable.

Explanation

(4 marks)

3B

This table shows the rainfall in the winter months for 2011 and 2012.

Winter	December	January	February
2011	33.2mm	79.5mm	57.9mm
2012	89.8mm	54.4mm	23.0mm

Work out the **total** rainfall for each winter.

Show your working

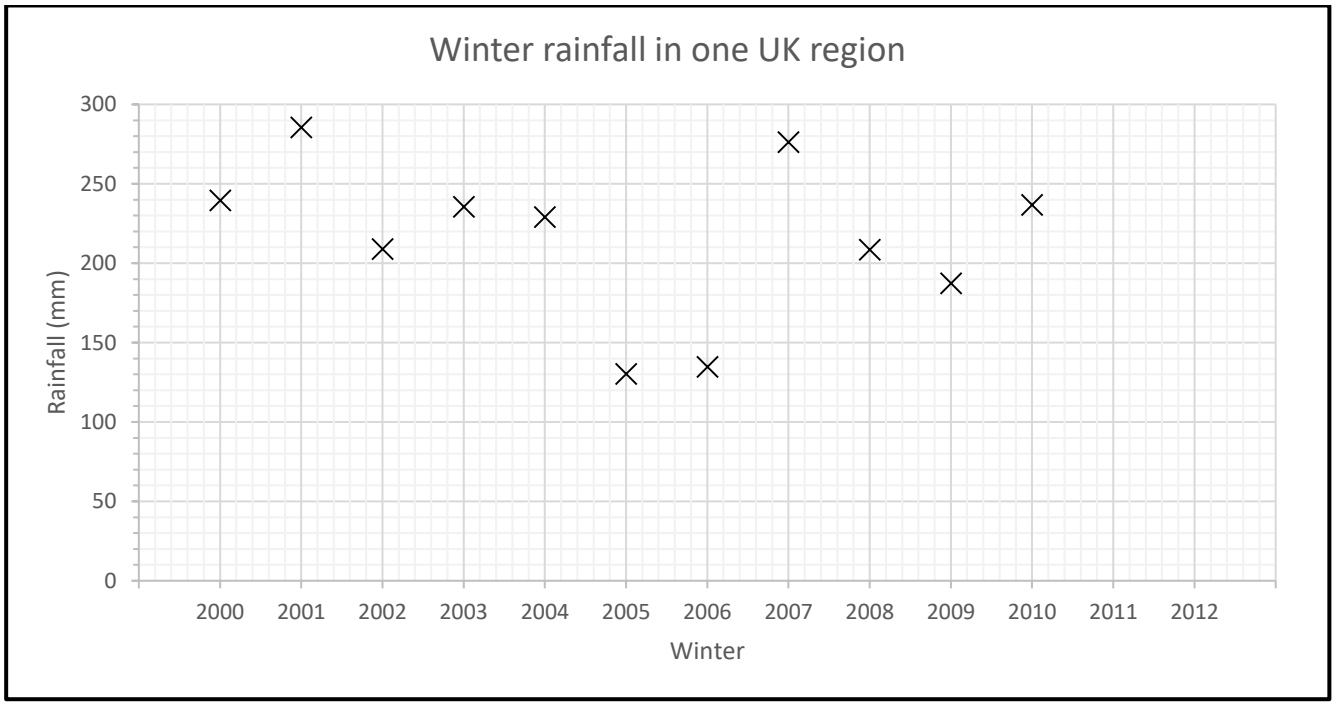
Total rainfall for winter 2011 _____ mm

Total rainfall for winter 2012 _____ mm

(2 marks)

3C

This graph shows total winter rainfall for the region.



Use your answers from **3B** to plot the winter rainfall for 2011 and 2012 on the graph.
Draw a trend line (line of best fit) on the graph.

(3 marks)

3D

Work out the range for the amounts of winter rainfall.

Year	Winter rainfall (mm)
2000	239.6
2001	285.4
2002	208.8
2003	235.4
2004	229.0
2005	130.2
2006	134.7
2007	276.3
2008	208.4
2009	187.2
2010	236.6

Show your working

Range _____ mm

Explain what your range shows.

Explanation

(3 marks)

3E

Look at your results in **3A** and **3B** and the graph in **3C**.
Compare the results for 2011 and 2012 (**3B**) with the average (**3A**) and the trend line (**3C**).
Make **two** comments.

Comment about the average

Comment about the trend line

(2 marks)

3F

Water shortage may cause economic problems.
In 2012 there was a water shortage in the region.

Use the following formula to work out how much the winter rainfall in 2012 was below the average winter rainfall for the years 2000 - 2010 as a percentage.

$$P = \frac{R-A}{A} \text{ x } 100$$

Where

P = percentage change (%)
R = total winter rainfall for 2012 (mm)
A = average winter rainfall for 2000 - 2010 (mm)

Give your answer to one decimal place.

Show your working

Percentage below average _____ %

(4 marks)

3G

Check one of your calculations in **3F**.
Use a **different** method to the one you used originally.

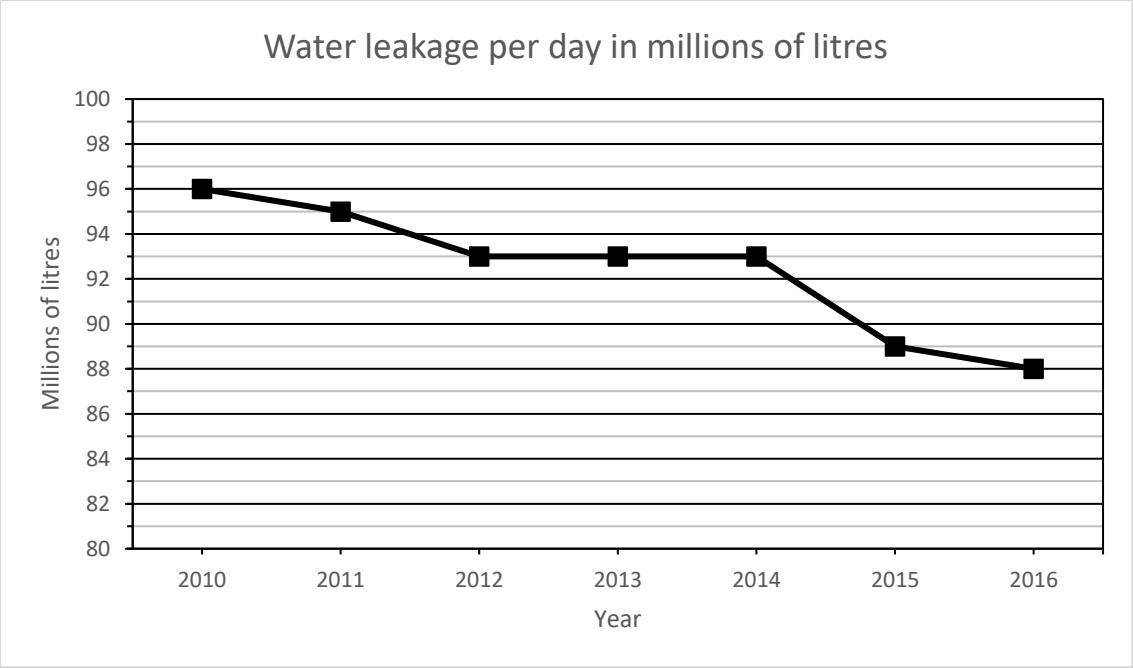
Write your check here

(2 marks)

3H

To reduce possible water shortages, the water company in the region had to decrease the amount of water that leaked through their pipes.

This graph shows the amount of water that leaked per day over a six year period.



The water company had a target for each of these six years to decrease the amount of water leaked by 2 million litres per day, compared to the previous year.

Work out in which years the company met the target.
Complete table.

Space for working

From – To	Target met? Y/N
2010 – 2011	
2011 – 2012	
2012 – 2013	
2013 – 2014	
2014 – 2015	
2015 – 2016	

(3 marks)

3l
In how many years did the company meet the target?
Work out the fraction of the targets met.
Give your answer in its simplest form.

Show your working

$\frac{\quad}{\quad}$

Fraction _____

(2 marks)

End of Assessment.