3748-620 Sample 2
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 – Gym training

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

Introduction
A sports team is planning its annual budget.
This task is about choosing a suitable gym and deciding on a subscription fee.

To complete this task you will need to

- work out how much money the team have to spend on gym training
- compare the costs of two gyms
- work out the subscription fee each team member will need to pay
- present your results
- recommend a gym to use.

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

1A

Last year, sponsorship money covered **gym training** costs for the sports team.
The chart shows how the sponsorship money was spent last year.

This year, sponsorship money will be **15% less**.
Work out how much money there will be for **gym training** this year.

Show your working

Sponsorship money for gym training £_____

(5 marks)

1B

The team members need to train every week and want to keep the **same** number of gym sessions they did last year.

The table shows how many gym sessions the team members did each month **last year**.

Average number of gym sessions each month				
Team member	**Pool**	**Weights**	**Fitness training**	**Sauna**
Alex	3	14	20	8
Sam	0	16	20	12
Chris	6	7	20	9
Pat	0	24	16	8

You have information on two local gyms.

Booley's Gym	
Facilities available	**Weekly pass ticket* price per person**
Swimming pool	**£12.50**
Weights room	
Fitness room	
Sauna	
* weekly pass ticket covers **all areas** of the sports centre for a MAXIMUM of **twelve** sessions per week	

Jim's Gym

monthly membership all inclusive deal*

£29.99 per person

*includes **unlimited use** of swimming pool, weights room and fitness room.

Sauna not included: £2.50 per session.

Work out the **monthly** gym training costs for the team.

Show your working

Complete your answer on the next page.

Show your working

Booley's Gym £_____

Jim's Gym £_____

(5 marks)

1C
The team members agree to each pay the same small monthly subscription fee to the sports team to help cover gym training costs.

Use your answers to **1A** and **1B** to work out for each gym

- the difference between the sponsorship money for gym training **this year** and the gym training costs for **this year**
- the subscription fee each member will need to pay **per month**.

Show your working

	Difference (£)	Subscription (£)
Booley's Gym		
Jim's Gym		

(5 marks)

1D

Check one of your calculations in **1A**, **1B** or **1C**.

Check it by a different method to the one you used originally.

The calculation I will check is in **1A** ☐ **1B** ☐ **1C** ☐

(Tick one box)

Write your check here

(2 marks)

1E

You need to make a notice for the team noticeboard to show the two options.

Make a table to summarise your results to show the two gyms, their costs, the sponsorship budget for gym training and the cost of subscriptions.

(4 marks)

1F

Which gym will you recommend to the team?
Explain your decision.

The gym I recommend is (Tick one box)	**Booley's Gym**	☐	**Jim's Gym**	☐

Explanation

(1 mark)

1G

You were asked to recommend a gym and decide on a subscription fee.

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 – Fish farm

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

Introduction
This task is about adding new tanks (rearing tanks) to breed fish on a trout fish farm.

To complete this task you will need to work out

- the volumes of water required
- the weight of fish
- the dimensions of the rearing tanks
- where the tanks can fit.

You will need to check your calculations.

2A

A fish farm needs some new rearing tanks.

You need to know how much water one rearing tank will hold.

$$V = \pi r^2 h$$

where

V=volume of water in tank in m^3

r = radius of tank in m

h = height of water in tank in m

use $\pi = 3.14$

$1 m^3 = 1000$ litres

Use the formula to work out how many litres of water one tank holds.

Show your working

Volume of water _____ litres

(5 marks)

2B

There will be **three** new rearing tanks.

Healthy fish need 1 litre of water for every 10 grams they weigh. Young trout weigh between 100g and 250g.

Work out the maximum number of young trout you can have in **three** tanks.
Give **one** reason for your answer.

Show your working

Maximum number of trout _____

Reason

(5 marks)

2C

Fresh water will be pumped into each rearing tank from the river on the farm.
The water must be filtered and pumped at a rate of **1200 litres per minute.**
The temperature must be controlled to between 5˚C and 15˚C.

You test some pumps. You record how long it takes to fill up a 900 litre barrel with each pump.

	Pump				
	Bspeed heavy duty	**Bspeed flow A**	**Magnum 250**	**Magnum 400**	**Hi-flow M**
time to fill 900 litre barrel in seconds	45	50	45	30	45
temperature control setting	✓	✓	✓	✗	✓
filter	✗	✓	✓	✓	✗

Choose a suitable pump to use for each rearing tank.
Explain your choice of pump **with supporting calculations**.

Show your working

Chosen pump
(Tick one box)

Bspeed heavy duty	☐
Bspeed flow A	☐
Magnum 250	☐
Magnum 400	☐
Hi-flow M	☐

Explanation

(4 marks)

2D

There is a space on the farm where the new rearing tanks can go.
You need to find out if this space is large enough.
Below is a scale diagram of the farm.

Work out the dimensions of the space for rearing tanks.

Show your working

Side	Length (m)
A	
B	
C	
D	
E	
F	

(2 marks)

2E

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

My check is for A ☐ B ☐ C ☐ D ☐ E ☐ F ☐
(Tick one box)

Write your check here

(2 marks)

2F

Each rearing tank needs a fence around it.
Below is a sketch of a rearing tank with the fence.

Sketch of fenced area for one rearing tank (not to scale)

Key

--------- **fence**

Diameter of rearing tank = 3.6 metres

Work out the dimensions of the fence.

Show your working

Length _____ **m**

Width _____ **m**

(3 marks)

2G

Use your answers to **2D** and **2F** to work out where the new rearing tanks will go.
Show where the new rearing tanks will go on the diagram.

Will it be possible to fit more tanks in the space?
Explain your answer.

Space for working

Is there space for more tanks? **Yes** ☐ **No** ☐

(Tick one box)

Explanation

(4 marks)

Task 3 – Bowling team

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

Introduction
This task is about choosing players for a bowling team.

To complete this task you will need to

- work out averages and ranges
- present results
- read data from a graph
- decide which players will be in the team.

You will need to check your calculations.

3A

The bowling team is made up of three players for each match.
You must select the players for the next match.
The table shows the scores of four players over the last 10 matches.

Player	Match									
	1	2	3	4	5	6	7	8	9	10
Jack	170	180	190	185	180	190	190	205	210	215
Jodie	*	*	180	200	120	*	*	184	195	190
Alan	104	104	140	*	150	142	160	175	*	*
Karen	225	230	*	175	*	180	175	*	170	160
***Did not play**										

Work out a suitable average for each player's score.
Explain why the average you used is the most suitable.

Tick the average you will use **Mean** ☐ **Median** ☐

(Tick one box)

Show your working

Player	Average
Jack	
Jodie	
Alan	
Karen	

Explanation

(5 marks)

3B

Using your answers to **3A**, draw a suitable chart to compare the average scores of each player.

(5 marks)

3C

Work out the range of scores for each player.
Compare your results and explain what they tell you about the scores of the four players.
Make **one** comment.

Player	Match									
	1	2	3	4	5	6	7	8	9	10
Jack	170	180	190	185	180	190	190	205	210	215
Jodie	*	*	180	200	120	*	*	184	195	190
Alan	104	104	140	*	150	142	160	175	*	*
Karen	225	230	*	175	*	180	175	*	170	160
*Did not play										

Show your working

Player	Range
Jack	
Jodie	
Alan	
Karen	

Explanation

(5 marks)

3D

Choose one of your calculations in **3C** to show a check.
Check it by a different method to the one you used originally.

Write your check here

(2 marks)

3E
This graph shows the performance of each player.

Look at the trend lines (lines of best fit).
Compare Jack's performance over the 10 matches to Jodie's performance.
Explain what their trend lines tell you. Make **two** comments.

Comment 1

Comment 2

Compare Alan's performance over the 10 matches to Karen's performance.
Explain what their trend lines tell you. Make **two** comments.

Comment 1

Comment 2

(4 marks)

3F

Look at **all the information and results** that you have.

Decide which **three** players will be in the team for the next match.

Explain your decision for each player using the trend line (**3E**) and either the average (**3A**) or the range (**3C**).

Choose Jack? **Yes** ☐ **No** ☐

(Tick one box)

Explanation

Choose Jodie? **Yes** ☐ **No** ☐

(Tick one box)

Explanation

Choose Alan? **Yes** ☐ **No** ☐

(Tick one box)

Explanation

Choose Karen? **Yes** ☐ **No** ☐

(Tick one box)

Explanation

(4 marks)

End of Assessment.

Spare graph paper for 3B only

Extra space for working out and answers