3748-620 Sample 5
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 – Applying for a mortgage

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

Introduction
This task is about buying a house using money from a mortgage and a deposit.
A mortgage is the amount of money you can borrow to buy a house.
A deposit is the amount of money you must save towards the cost of a house.

To complete this task, you will need to:

- work out the maximum amount you can borrow
- work out the maximum price of house you can afford to buy
- summarise your findings
- choose a mortgage
- work out repayment costs.

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

1A

A mortgage is the amount of money you can borrow to buy a house.
Two friends have been saving to buy a house together and need to get a mortgage.

The amount they can borrow is based on the amount of money they earn.
One person earns **£40 000** per year. This is the **main** income.
The other person earns **£16 000** per year. This is the **second** income.

The maximum amounts that can be borrowed from three different companies are shown below.

Mortgage company	Wurton Mortgages	Homestead Mortgages	Moving Day Mortgages
Maximum mortgage amount	2 x **both** incomes	3 x **main** income **plus** 1 x **second** income	3.5 x **main** income

Work out the maximum amount they can borrow from each company.

Show your working.

Maximum amount they can borrow:

Wurton £_____

Homestead £_____

Moving Day £_____

(4 marks)

1B

In order to buy a house you need a mortgage **and** a deposit.

A deposit is the amount of money you must save towards the cost of a house.

The friends have already saved **£25 000** to use as the deposit.

Use the figure above and your answers from (**1A**) to work out the maximum price of house they can afford to buy with each mortgage company.

Show your working.

Maximum price of house they can afford:

Wurton £_____

Homestead £_____

Moving Day £_____

(1 mark)

1C

The price of the house the friends want to buy is **£160 000**

The three companies need different amounts for the deposit.

The amounts needed are shown below:

Mortgage company	Wurton Mortgages	Homestead Mortgages	Moving Day Mortgages
Deposit needed	9% of the house price	$\frac{1}{5}$ of the house price	12.5% of the house price

Work out the deposit needed for each of the companies.

Show your working.

Deposit needed:

Wurton £_____

Homestead £_____

Moving Day £_____

(4 marks)

1D

Choose **one** of your calculations in **1A** or **1C** to show a check.

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

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

(Tick one box)

Write your check here

(2 marks)

1E

Make a summary table to show the house price, the maximum amount the friends can borrow, the maximum price of house they can afford, the deposit needed for each company and the deposit they have saved.

(4 marks)

1F

The price of the house the friends want to buy is **£160 000**

The friends need to decide on which mortgage company to use.

Decide whether or not each of the mortgages are suitable.

Give reasons for your decisions, referring to your results.

Is **Wurton** suitable?

(tick one box)

Yes	No

Reason for your decision

Is **Homestead** suitable?

(tick one box)

Yes	No

Reason for your decision

Is **Moving Day** suitable?

(tick one box)

Yes	No

Reason for your decision

Chosen mortgage company_____

Amount borrowed £ _____

(4 marks)

1G

The friends decide to borrow the maximum amount allowed by the chosen mortgage company. They want to know how much their monthly repayments will be.

The interest rate on the mortgage is **6%.**

Use the formula below to work out the monthly repayments.

$$M = \frac{AR}{12}$$

Where,
M = monthly repayment
A = maximum mortgage amount
R = interest rate

Show your working

Monthly Repayment £_____

(3 marks)

1H

You were asked to compare mortgages, summarise your findings in a table and calculate repayments.

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)

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Task 2 – Athletics track

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

Introduction
This task is about an athletics track.

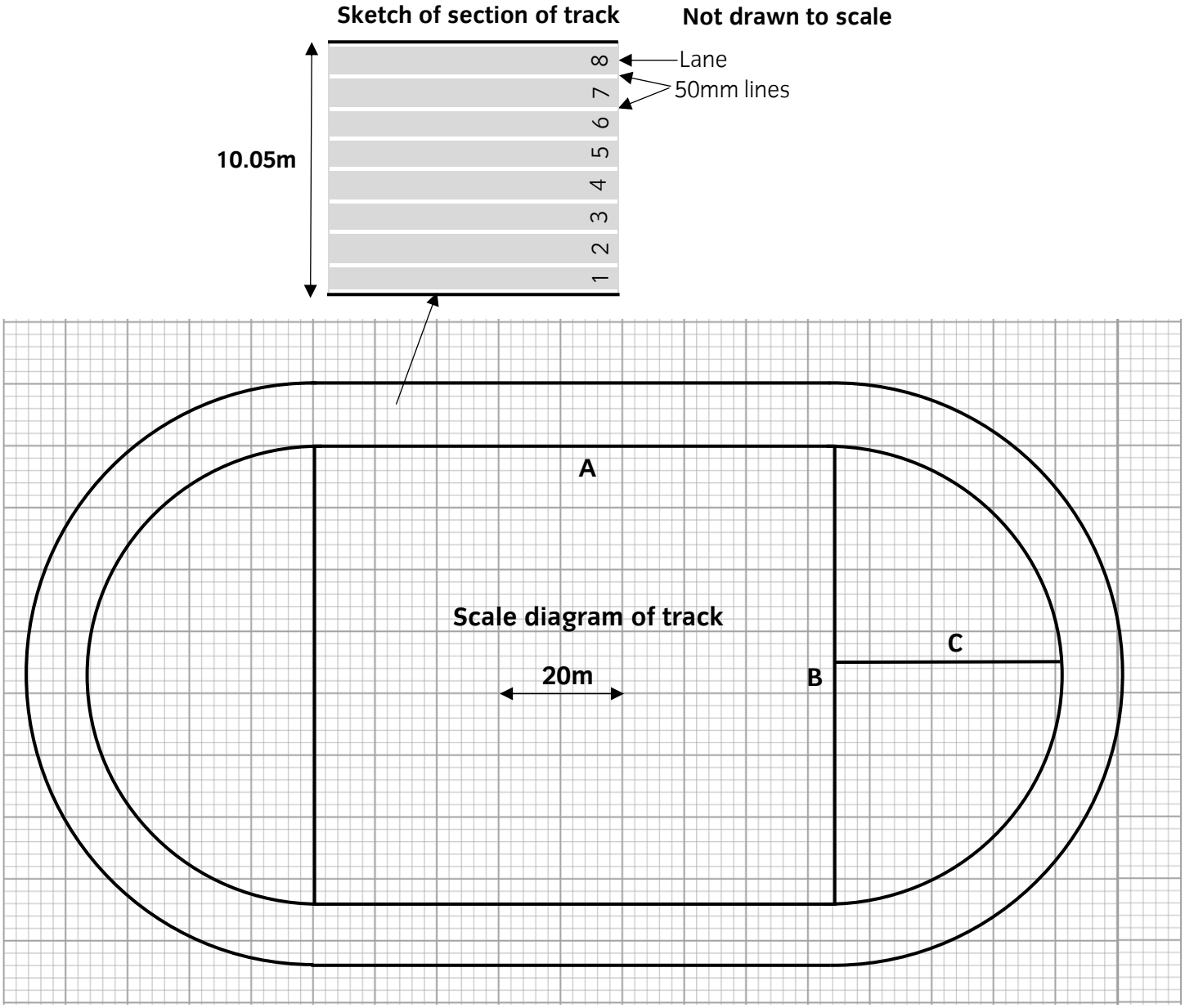
To complete this task, you will need to

- work out the distance around the track
- work out the width of each lane
- work out the starting position for runners in a one lap race
- work out the speed of a world class runner.

You will need to check your calculations.

2A

Here are some plans of the athletics track.



Use the scale diagram to work out the lengths of the different parts of the track. **Line C is half the length of Line B.**

Complete the table.

Show your working.

Line	Length (m)
A	
B	
C	

(4 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.

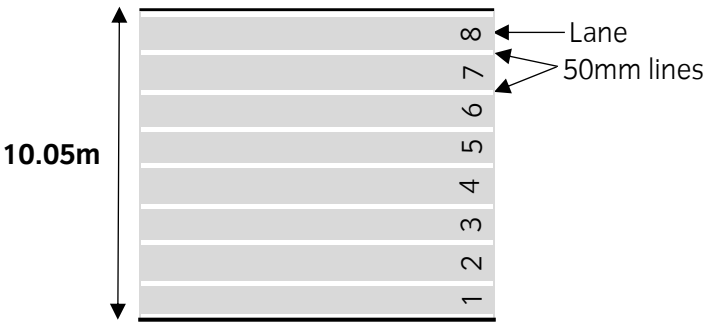
Write your check here

(2 marks)

2C
The running track needs to be split into **eight** equal lanes.
Each lane must be an equal width with a 50mm line on both sides of each lane.

Sketch of section of track

Not drawn to scale



Work out the width of each lane.

Show your working

Width of each lane_____

(5 marks)

2D

The formula gives the perimeter of the inside edge of the track.

Use the formula to work out the perimeter.

$$P = (2A + 2\pi C) - 0.36$$

Where
P = perimeter in metres
A = length of A in metres from the plan
C = length of C in metres from the plan
$\pi = 3.14$

Show your working

Perimeter _____ **m**

(4 marks)

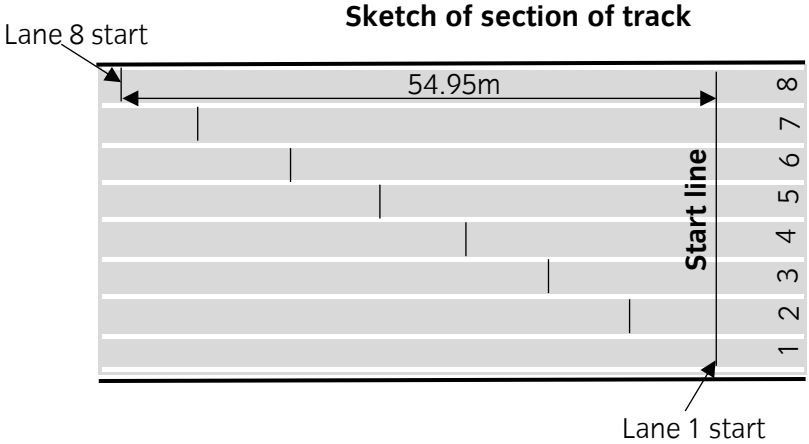
2E

There will be a one lap race. The runners must complete the race in their separate lanes 1 – 8.
All runners must run an equal distance in the race and **finish** at the same point.
This means that they will **start** at different points on the track (a staggered start).

The runner in Lane 1 starts on the start line and the runner in Lane 8 starts 54.95m ahead of the start line.

Sketch of section of track

Not drawn to scale



Work out the distances ahead of the start line for the other 6 runners (Lanes 2 – 7).
Complete the table.

Show your working

Lane	Distance from start line
1	0m
2	
3	
4	
5	
6	
7	
8	+54.95m

(5 marks)

2F

A world class runner won an 800m race in a time of 1 minute and 45 seconds.

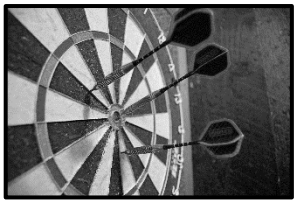
Work out his average running speed in km per hour.
Give your answer to two decimal places.

Show your working

Speed _____ km/h

(5 marks)

Task 3 – Darts tournament



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

Introduction
This task is about recording players' performances in a darts tournament.

To complete this task, you will need to

- work out average scores
- work out percentages
- complete a scorecard
- interpret a graph
- work out probability.

You will need to check your calculations.

3A

Two players take part in a darts tournament.
In the first round they play 3 games.
The first player to score exactly 501 wins a game.

Below are the scores for both players.

Round 1		
	Player 1 scores for each turn	**Player 2 scores for each turn**
Game 1	100	121
	140	140
	121	85
	100	70
	40	
Game 2	80	180
	120	140
	120	140
	121	1
		40
Game 3	140	180
	140	180
	100	121
	85	0
	36	0

Which player won the round?
Explain your decision.

Who won the round? **Player 1** ☐ **Player 2** ☐
(Tick one box)

Explanation for your decision

(2 marks)

3B

In each game players took turns to throw darts.

Round 1		
	Player 1 scores for each turn	**Player 2 scores for each turn**
Game 1	100	121
	140	140
	121	85
	100	70
	40	
Game 2	80	180
	120	140
	120	140
	121	1
		40
Game 3	140	180
	140	180
	100	121
	85	0
	36	0

Work out the average score per turn for each player over the three games.
Explain why the average you used was the most suitable.
Complete the table.

Tick the average you will use (Tick one box)

Mean		**Median**		**Mode**	

Show your working

Player	**Player 1**	**Player 2**
Average		

Explanation for your choice of average

(4 marks)

3C

The first player to score exactly 501 wins a game.
A finishing score is when a player is able to reach a score of 501 with one last dart.

The table below shows the number of times a player is on a finishing score before the player manages to win the game.

The finishing success rate for each player is the percentage of times a player wins a game when they are on a finishing score.

Player 1	**Times on finishing score**	**Wins the game**
Game 1	2	1
Game 2	0	0
Game 3	3	1
Player 2	**Times on finishing score**	**Wins the game**
Game 1	0	0
Game 2	2	1
Game 3	6	0

Work out the finishing success rate percentage for each player.

Show your working.

Finishing success rate for Player 1 _____ %

Finishing success rate for Player 2 _____ %

(3 marks)

3D

Choose one of your calculations in **3A** or **3B** or **3C** to check.

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

The calculation I will check is in | **3A** ☐ | **3B** ☐ | **3C** ☐

(Tick one box)

Write your check here

(2 marks)

3E

Use your results and the table at **3A** to complete the scorecard for Round 1.

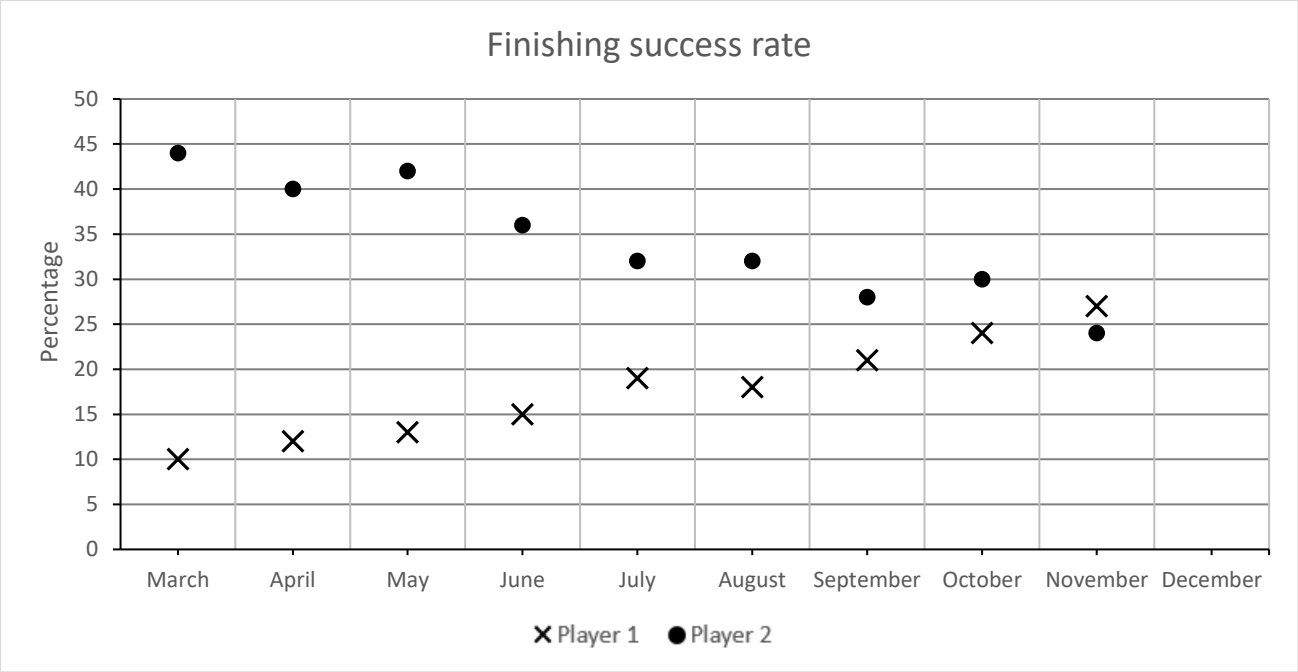
Space for working

Round 1 Scorecard		
Player 1		**Player 2**
	Average Score	
	Scores 100 or more	
	Scores 140 or more	
	Number of 180s	
	Finishing success rate	
Round 1 result	**Winner:**	**won by:**

(4 marks)

3F

Both players want to improve their finishing success rates. This graph shows the finishing success rates for both players.



Add the most recent finishing success rate percentages to the graph from **3C** for both players.

Draw a trend line (line of best fit) for each player.

Explain what the trend lines tell you about the performance of each player.
Make two comments.

Comment Player 1

Comment Player 2

(6 marks)

3G

The winning player plays in Round 2 and will play one of the following players. He wants to know the chance that he will play one of the top ten players in Round 2.

The person he will play is chosen at random.

The list below shows the players and their rankings.

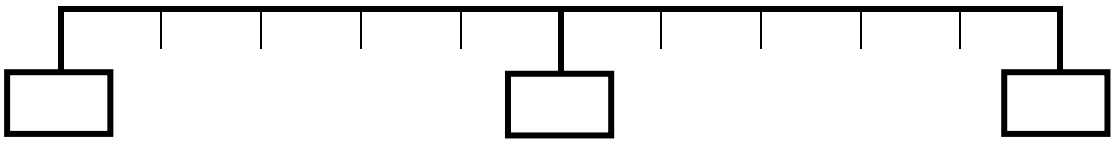
Player	**Ranking**	**Player**	**Ranking**	**Player**	**Ranking**
Adam Jones	10	Michael Thomas	2	John Oaks	8
Joe Thompson	20	Carl Phillips	24	Simon Smith	4
Oscar Timms	5	Derek Clarke	3	Nigel Harms	7
Ray Barnes	12	Martin Forrest	14	Christian Owens	1
Jamie Fisher	18	Adrian Banks	9	Lewis Walker	21

Work out the probability that the winning player will play one of the top ten players in Round 2.

Complete the probability scale to show your answer.

Show your working

Probability _____



(4 marks)

End of assessment

Extra space for working out and answers

Extra space for working out and answers

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