

Write your name here

Surname

Other names

Edexcel
Functional Skills

Centre Number

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Candidate Number

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Mathematics

Level 2



13 – 17 June 2011

Time: 1 hour 30 minutes

Paper Reference

FSM02/01

You must have:

Pen, calculator, HB pencil, eraser, ruler graduated in cm and mm, protractor, compasses.

Total Marks

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Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- **Calculators may be used.**

Information

- The total mark for this paper is 48.
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*
- **Where you see this sign you must show clearly how you get your answers because marks will be awarded for your working out.**



Advice

- Read each question carefully before you start to answer it.
- Show all stages in the calculations.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ►

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SECTION A: Leisure centre

Answer all questions in this section.

Write your answers in the spaces provided.

- 1 Chris wants to join his local leisure centre.

The table shows information about different types of membership.

Membership type	Monthly price	Annual price	Facilities you can use	Times you can use the facilities
Fitness direct	£36	£388	<ul style="list-style-type: none">• Gym• Fitness classes	Any time
Fitness direct off-peak	£25	£267	<ul style="list-style-type: none">• Gym• Fitness classes	9.00 am – 4.00 pm Monday – Friday and all day at weekends
Complete fitness	£44	£484	<ul style="list-style-type: none">• Gym• Swimming pool• Sauna• Fitness classes	Any time
Complete fitness off-peak	£33	£363	<ul style="list-style-type: none">• Gym• Swimming pool• Sauna• Fitness classes	9.00 am – 4.00 pm Monday – Friday and all day at weekends

Chris wants to use the gym and the swimming pool.

He will go to the leisure centre each day **before** work and at weekends.

The leisure centre opens at 6 am.

Chris starts work each day at 9 am.

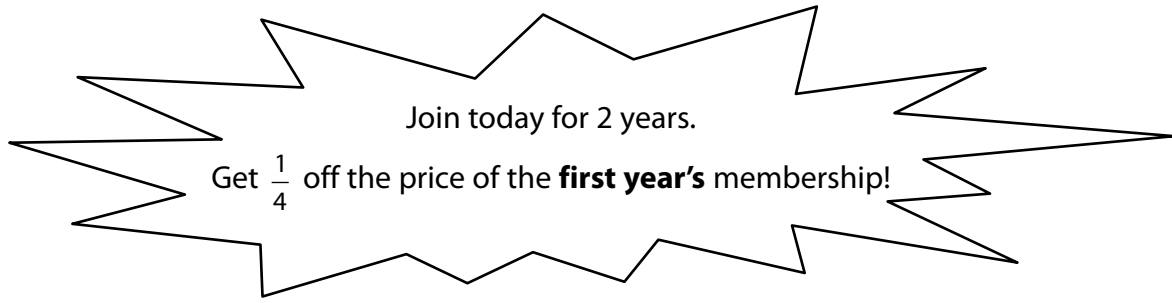
(a) Which membership type should Chris choose?

(1)

Write your answer in the box below.



The leisure centre has a special offer.



Chris can pay up to a total of £850 to join the leisure centre for two years.

(b) Can Chris use the special offer to join the leisure centre for two years? (3)

Use the box below to show clearly how you get your answer.



A large empty rectangular box for writing the answer.

(Total for Question 1 is 4 marks)



- 2 The leisure centre opens at 6 am from Monday to Friday.
Chris needs to arrive at work at 9 am.

Chris wakes up 20 minutes before he leaves the house.
It takes him 15 minutes to get from his house to the leisure centre.
It takes him 35 minutes to get from the leisure centre to work.

He wants to spend a total of $1\frac{1}{2}$ hours at the leisure centre.

Chris wants to wake up as late as possible.
He needs to work out what time to set his alarm clock for.

(a) What time should Chris set his alarm clock for?

(3)

Use the box below to show clearly how you get your answer.



Chris goes swimming at the leisure centre.

The swimming pool has a length of 25 metres.

Chris knows that $1 \text{ km} = \frac{5}{8} \text{ mile}$.

Chris is going to swim 1 mile.

(b) How many lengths of the pool will Chris swim?

(3)

Use the box below to show clearly how you get your answer.



A large empty rectangular box for showing the working out of the answer.

(Total for Question 2 is 6 marks)



3 Chris starts a training programme at the leisure centre.

He finds out this information.

When training, men need to eat
between 1.2 g and 1.7 g of protein per kg of body weight every day.

Chris has a body weight of 95 kg.

He keeps a list of the food he eats one day.

He finds out the amount of protein in each type of food.

Food	Amount eaten	Protein (per 100 g)	
Porridge oats	50 g	11 g	
Apple	150 g	-	
Turkey steak	100 g	22.3 g	
Banana	125 g	1 g	
Wholemeal bread	400 g	10.1 g	
Baked beans	200 g	4.7 g	
Pasta	100 g	12.5 g	
Sweetcorn	200 g	2.5 g	

Did Chris eat enough protein that day?

(6)

You may use the blank column in the table for some calculations.

Use the box below to show clearly how you get your answer.



[Empty rectangular box for writing answers]

(Total for Question 3 is 6 marks)



SECTION B: Horses

Answer all questions in this section.

Write your answers in the spaces provided.

4 Sarah works at Manor Farm Stables looking after horses.

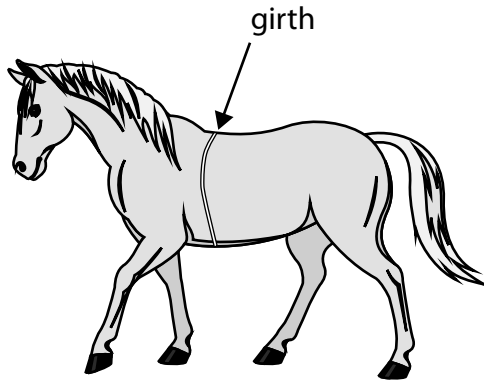
Sarah uses this formula to work out the weight of a horse.

$$W = \frac{g^2 \times b}{11877}$$

W = weight of horse (kg)

g = girth of horse (cm)

b = body length of horse (cm)



Sarah measures a horse's girth and body length.

The horse has

- a girth of 185 cm,
- a body length of 160 cm.

(a) Work out the weight of this horse.

(2)

Use the box below to show clearly how you get your answer.



Every day a horse needs to eat a weight of food equal to 2% of its body weight.
Horses eat hay and pony nuts in the ratio 1 : 4

Storm is a horse in the stables.

Storm's body weight is 400 kg.

(b) What weight of hay does Storm need to eat every day?

(3)

Use the box below to show clearly how you get your answer.



A large empty rectangular box for writing the answer and showing the working.

(Total for Question 4 is 5 marks)



- 5 Horses at the stables take part in show-jumping competitions.
A horse gets a rosette for coming 1st or 2nd or 3rd or 4th.

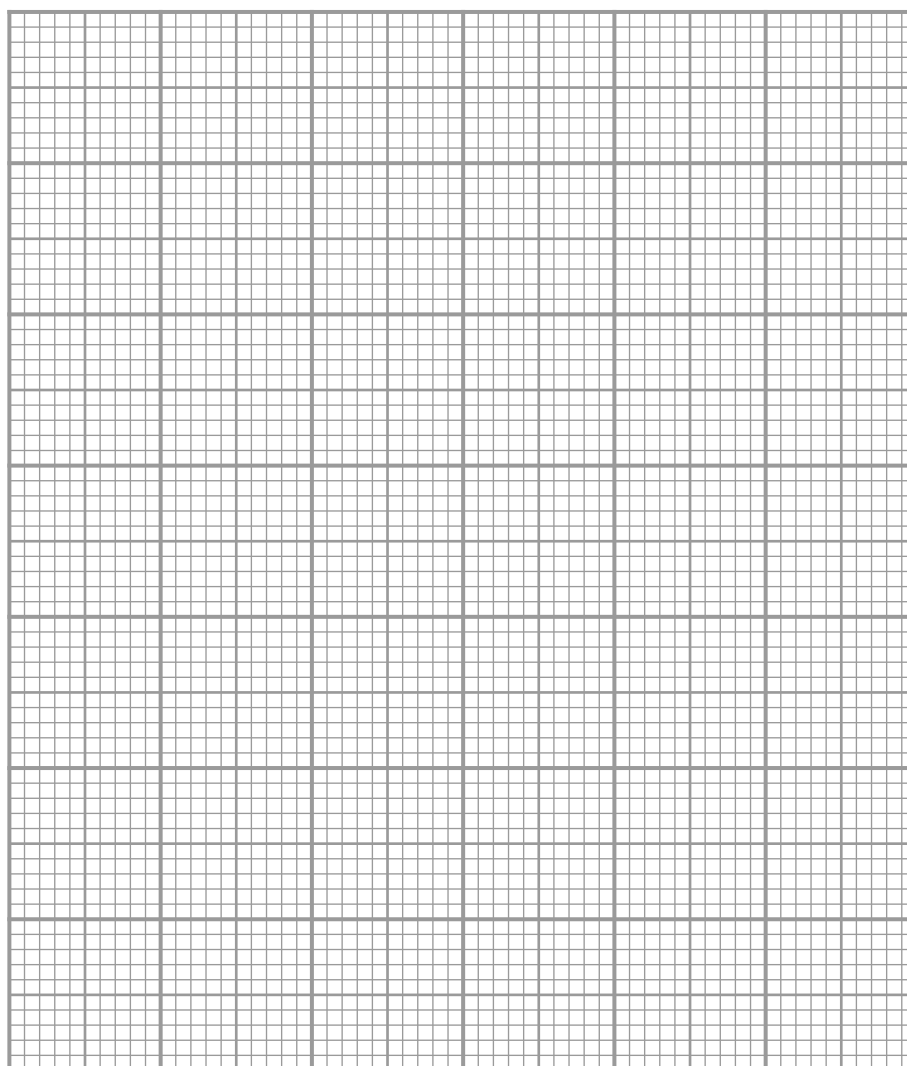


Sarah wants to draw a graph to display the numbers of rosettes the horses won in 2009 and in 2010

	1st place	2nd place	3rd place	4th place
2009	37	55	42	11
2010	51	40	53	28

Draw a graph that Sarah could use.

(3)



(Total for Question 5 is 3 marks)



6 Sarah needs new rubber mats to cover the floor of one stable.

The stable is 3.6 metres long and 3.6 metres wide.

Each rubber mat is 1.8 metres long and 1.2 metres wide.

Sarah orders the rubber mats online.

The rubber mats cost £45 each.

There is a total delivery charge of £18

How much will Sarah have to pay?

(4)

Use the box below to show clearly how you get your answer.



A large empty rectangular box for showing the calculation.

(Total for Question 6 is 4 marks)



7 Sarah organises a competition at the stables.

There are three events in the competition.

Event A: dressage

Event B: show-jumping

Event C: cross-country

Each horse does all three events.

Only one horse can do each event at a time.

There are six horses in the competition:

Storm, Midnight, Dobbin, Trigger, Velvet and Ginger.

The table shows the number of minutes for each event for each horse.

Event	Number of minutes
A	5 minutes
B	5 minutes
C	10 minutes

Each horse needs a break of at least 5 minutes between finishing one event and starting the next event.

The competition starts at 10 am.

It will finish by 12:30 pm.

Sarah wants to show the information for the competition in a table.

The table needs to show the starting times of each event for each of the six horses.

Make a table for Sarah.

(4)



Use the box below to show your table clearly.

(Total for Question 7 is 4 marks)



SECTION C: Driving

Answer all questions in this section.

Write your answers in the spaces provided.

8 Japhet wants to have driving lessons.

He finds out the prices of driving lessons from three different driving schools.

Alpha Driving School	Ben's Driving School	Cal's Driving School
<ul style="list-style-type: none">• A total of £20 for the first 2 hours• Then £25.80 per hour <p>Book a total of 10 hours - get 10% off all lessons costing £25.80</p>	<p>£28.75 per hour</p> <p>Book 10 hours - get a £2 discount per hour</p> <p>and</p> <p>get the 10th hour free</p>	<p>Only £22 per hour!</p>

Japhet decides to book 10 hours of lessons.

He wants to book the lessons with the driving school that will charge him the least amount of money.

Which driving school should Japhet choose?

(5)

Use the box below to show clearly how you get your answer.



[Empty rectangular box for answer]

(Total for Question 8 is 5 marks)



9 Japhet is practising for his driving theory test.

There are 50 questions in the multiple choice part of the test.

To pass this part of the test Japhet needs to get at least 43 questions right out of a total of 50 questions.

Alison says,

'This means you need to get more than 85% of the questions right.'

(a) Is Alison correct?

(3)

Use the box below to show clearly how you get your answer.



The second part of the theory test is called a hazard perception test.

To pass this part of the test Japhet needs to get at least 44 marks out of a total of 75 marks.

Japhet keeps a list of the number of marks he gets each time he practises the test.

37 45 48 39 46 44 49 45

(b) Work out the mean of Japhet's marks.

(2)

Use the box below to show clearly how you get your answer.



(c) Write down a calculation to check your answer to part (b).

(1)

Write your check in the box below.

(Total for Question 9 is 6 marks)



10 Japhet and Alison live in Letchworth.
They want to go to the cinema in Cambridge.

A return train ticket from Letchworth to Cambridge costs £8.50

Japhet and Alison both have a railcard.

They both get $\frac{1}{3}$ off the price of the train tickets.

(a) How much will it cost for 2 return tickets to Cambridge?

(2)

Use the box below to show clearly how you get your answer.



The return journey from Letchworth to Cambridge by car is 50 miles.

Alison's car uses 1 litre of petrol for every 10 miles.
Petrol costs £1.36 per litre.

If they go by car they will have to pay £5.50 to park the car.

They want to choose the cheapest way to travel.

(b) Should they travel by train or by car?

(3)

Use the box below to show clearly how you get your answer.



(Total for Question 10 is 5 marks)

TOTAL FOR PAPER IS 48 MARKS



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