

Write your name here

Surname

Other names

**Pearson Edexcel
Functional Skills**

Centre Number

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Candidate Number

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Mathematics

Level 2



8 – 12 February 2016

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

My signature confirms that I will not discuss the content of the test with anyone until the end of the 5 day test window.

Signature: _____

Instructions

- Use a **black** ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Sign the declaration.
- 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.*
- **You must show clearly how you get your answers because marks will be awarded for your working out.**



- **Check your working and your answers at each stage.**
- **This sign shows where marks will be awarded for showing your check.**

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.

Turn over ►

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PEARSON

SECTION A: Outdoor swimming pool

Answer all questions in this section.

Write your answers in the spaces provided.

- 1 Rick is the manager of an outdoor swimming pool.
He carries out a survey of regular early morning swimmers.
He puts the results of his survey into a data collection sheet.

	Men		Women	
	under 60 years of age	age 60 years and over	under 60 years of age	age 60 years and over
swim once a week	38	56	14	52
swim 2 - 3 times a week	24	48	42	56
swim more than 3 times a week	11	25	22	62

Rick works out that 27% of these swimmers swim more than 3 times a week.

Is Rick correct?
Justify your answer.

(3)

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

(Total for Question 1 is 3 marks)

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- 2 Manraj works as a lifeguard at the pool.
The manager at the pool uses this formula to work out the total pay for Manraj.

$$P = 5.8h + 8.7t$$

P = total pay (£)
h = number of contract hours worked
t = number of hours of overtime worked

Manraj works at the pool for 112 contract hours and 28 hours of overtime in July.

He always puts $\frac{1}{3}$ of his total pay in a savings account each month.

Manraj thinks he needs to put over £300 of his total pay in his savings account in July.

Is Manraj correct?
Show why you think this.

(4)

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

(Total for Question 2 is 4 marks)



- 3 Julie uses the outdoor pool.
The outdoor pool will be open for 15 weeks in the summer.
Julie will swim each Monday and Friday.

At the beginning of the summer she finds this information.

Single ticket	£5.20
Book of 20 single tickets	£83.20
Summer season ticket	£138.00

Each time Julie swims she needs to use one single ticket or a season ticket.

She wants to pay as little money as possible in total.

- (a) Should Julie buy a season ticket?
Show a check of your working and evaluate your check.

(5)

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

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Use the box below to show your check and write your evaluation.



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Julie wants to swim a mean average of 3 km per week.

She keeps a record of the number of lengths of the pool she swims each time she goes swimming for the first 4 weeks.

	Week 1		Week 2		Week 3		Week 4	
	Mon	Fri	Mon	Fri	Mon	Fri	Mon	Fri
Number of lengths swum	24	40	32	20	24	26	34	32

Each length of the pool is 50 metres.

(b) Did Julie swim a mean average of 3 km per week?

(4)

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[Empty answer box for Question 3]

(Total for Question 3 is 9 marks)



SECTION B: South Africa

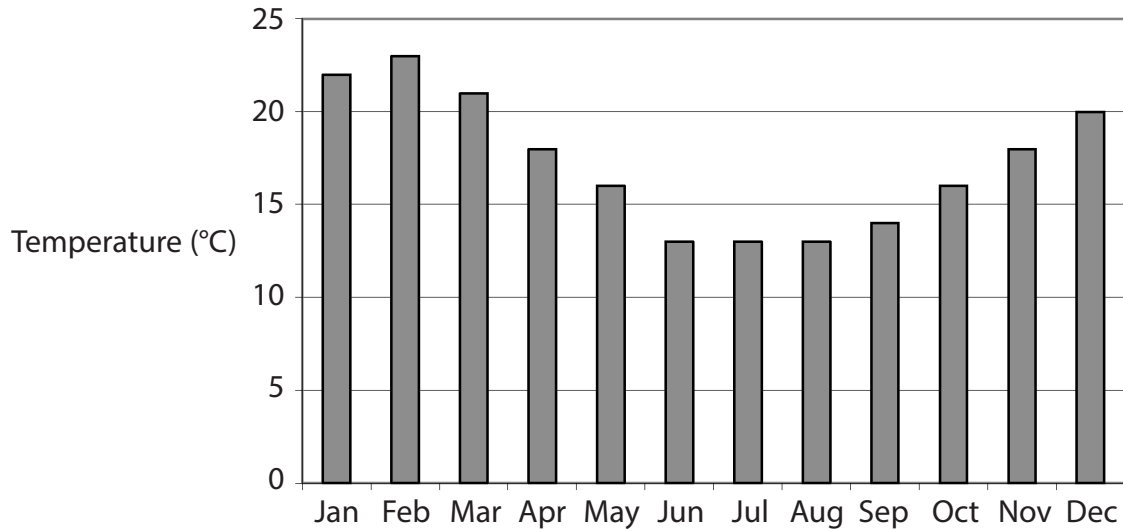
Answer all questions in this section.

Write your answers in the spaces provided.

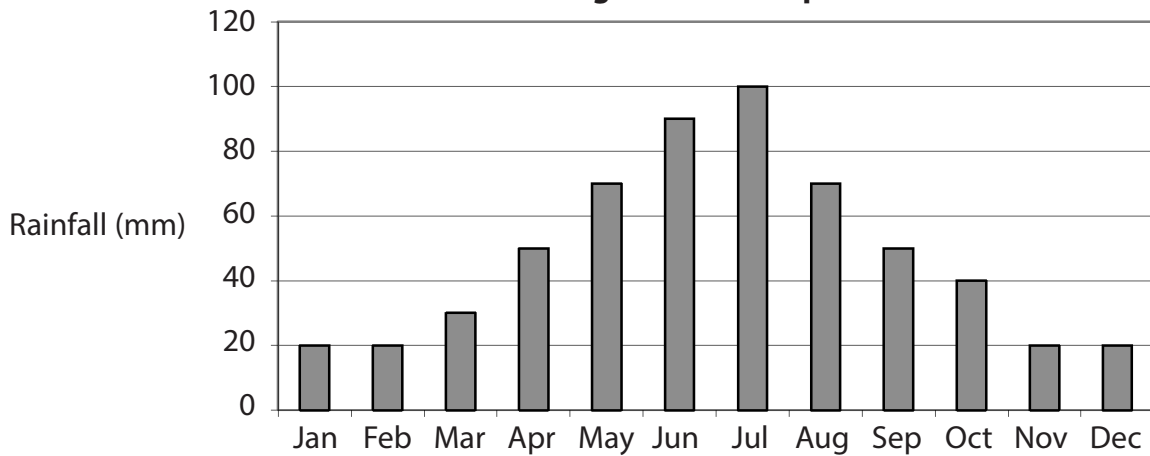
4 James and Becky are planning a holiday to South Africa.

Becky finds out some information about the weather in Cape Town in South Africa.

Average temperature – Cape Town



Average rainfall – Cape Town



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They want to go to South Africa in the whale watching season.
Becky finds out that the whale watching season is from June to November.

They want to go in a month when

- the average temperature in Cape Town will be at least 15°C
- the average rainfall in Cape Town will be less than 40 mm.

In which month should James and Becky go to South Africa?
You must give reasons for your answer.

(2)

Write your answer and reasons in the box below.

(Total for Question 4 is 2 marks)



- 5 James finds a hotel to book for 6 nights in Cape Town. The hotel has an offer for the time they will be staying.



James books one double room for 6 nights.

At the time of booking he pays a deposit of 15% of the total cost. He will pay the rest of the total cost when they arrive at the hotel.

(a) How much will James have to pay when they arrive at the hotel?

(5)

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

Empty box for showing the solution to the problem.

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Becky is going to book tickets over the internet for three attractions. She finds out the price of tickets.

Attraction	Adult ticket price (South African Rand)
Robben Island	280
Table Mountain	225
Big bus	150

Becky wants to buy 2 adult tickets for each of the three attractions. She knows that £1 = 19.82 South African Rand.

Becky has a budget of £80 to buy all the tickets.

- (b) Does Becky have enough money in her budget to buy all the tickets? Use estimation to show a check for your answer. (4)

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

Show your check in the box below.



(Total for Question 5 is 9 marks)



- 6 James and Becky hire a car when they are in South Africa. They are going to drive from Cape Town to Plettenberg Bay to go whale watching. They make notes about their trip.

- drive 520 km to Plettenberg Bay
- drive at an average speed of 100 km/h
- stop at a National Park for $1\frac{1}{2}$ hours for a walk
- have a 45 minute stop for lunch

Becky wants to be in Plettenberg Bay by 5:30pm.

(a) What is the latest time they should leave Cape Town?

(3)

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James sees some information about a large tree in the National Park.

Estimated age of tree	600 years
Total height	36.9 metres

James wants to know how many centimetres, on average, the tree grew each year.

- (b) Work out how many centimetres, on average, the tree grew each year.
Give your answer correct to one decimal place. (2)

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

(Total for Question 6 is 5 marks)



SECTION C: Zoo

Answer all questions in this section.

Write your answers in the spaces provided.

7 Sarah works at a zoo.

An elephant calf is born at the zoo.
The elephant calf weighs 310 pounds.

Sarah weighs 63 kg.

She knows $1 \text{ kg} = 2.2 \text{ pounds}$.

Sarah says,

“The elephant calf weighs more than $2\frac{1}{2}$ times as much as I do.”

(a) Is Sarah correct?
Show why you think this.

(3)

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There are 8 adult elephants at the zoo.

Every day each adult elephant eats

- 125 pounds of hay
- 10 pounds of pellets
- 10 pounds of fruit and vegetables.

Sarah works out that the 8 elephants eat more than a total of 40 000 pounds of food in one month.

(b) Is Sarah correct?
Show why you think this.
Show a check of your working.

(4)

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

Use the box below to show your check.

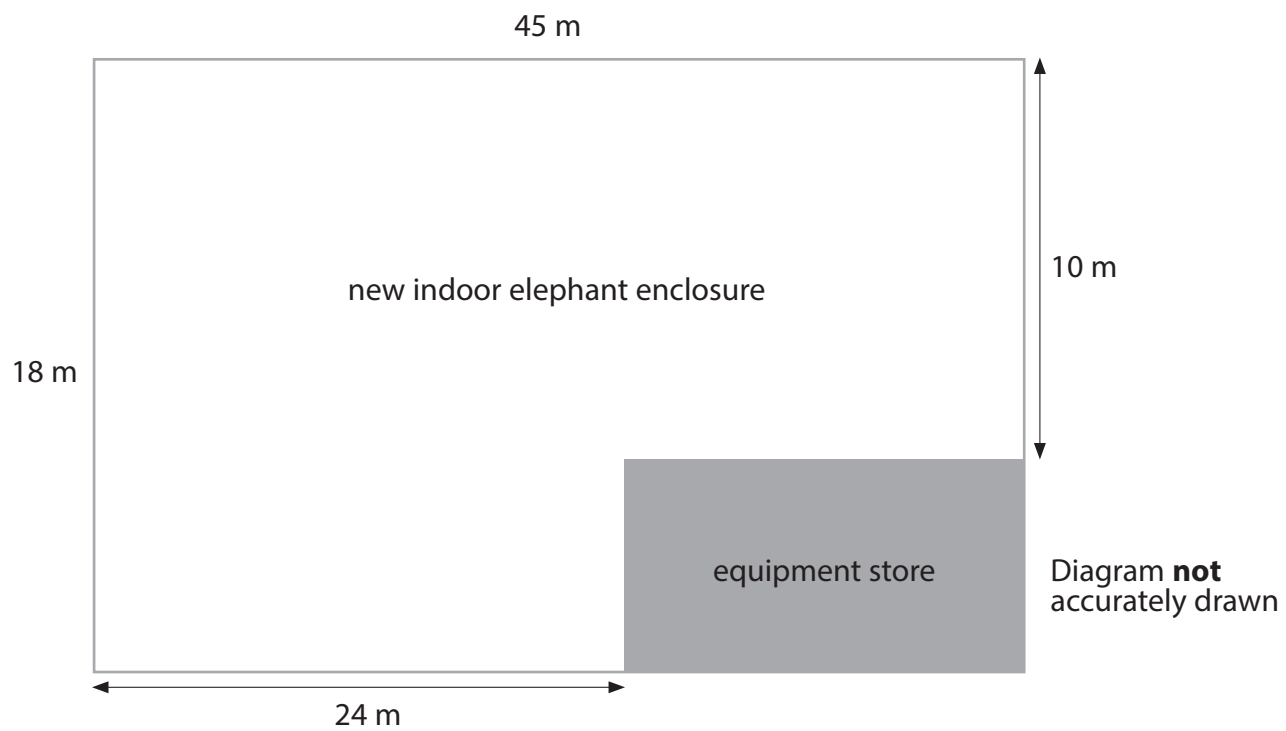


(Total for Question 7 is 7 marks)



8 Gary is a manager at the zoo.

He is checking the plans for the new indoor elephant enclosure.



Gary finds out this information.

Indoor enclosures should provide
a minimum of 200 m² of floor space for 4 (or fewer) elephants
and an extra 80 m² of floor space for each additional elephant

He wants there to be enough floor space in the new indoor elephant enclosure for 10 elephants.

Is there enough floor space for 10 elephants in the new indoor elephant enclosure?

(5)

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



(Total for Question 8 is 5 marks)



- 9 Every day the zoo puts on some events.
Each event needs a presenter.

Time	Event	Presenter
10:20 - 10:40	Lemur talk	
10:50 - 11:10	Bear talk	
11:20 - 11:40	Penguin talk	
11:50 - 12:10	Train ride	
12:20 - 12:40	Elephant talk	
12:20 - 12:40	Train ride	
12:50 - 13:10	Train ride	
13:20 - 13:40	Meerkat talk	
13:20 - 13:40	Train ride	
13:50 - 14:10	Train ride	
14:20 - 14:40	Wolf talk	
14:20 - 14:40	Train ride	
14:50 - 15:10	Train ride	
15:20 - 15:40	Chimpanzee talk	
15:20 - 15:40	Train ride	
15:50 - 16:10	Train ride	

Ali, Rachel, Sarah and Zak are presenters at the zoo.

Ali can do the Train ride, Elephant talk and Bear talk.

Rachel can do the Train ride, Wolf talk and Meerkat talk.

Sarah can do the Train ride, Lemur talk, Meerkat talk and Elephant talk.

Zak can do the Penguin talk, Wolf talk, Meerkat talk and Chimpanzee talk.

No presenter can do more than 5 events in a day.

Each presenter needs one hour for lunch between 11:45 and 14:15

Gary has to fill in a plan to show which presenter will do each event.

Complete the plan.
Remember to show the lunch time for each presenter.

(4)

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Write your answer in the box below.

Time	Event	Presenter
10:20 - 10:40	Lemur talk	
10:50 - 11:10	Bear talk	
11:20 - 11:40	Penguin talk	
11:50 - 12:10	Train ride	
12:20 - 12:40	Elephant talk	
12:20 - 12:40	Train ride	
12:50 - 13:10	Train ride	
13:20 - 13:40	Meerkat talk	
13:20 - 13:40	Train ride	
13:50 - 14:10	Train ride	
14:20 - 14:40	Wolf talk	
14:20 - 14:40	Train ride	
14:50 - 15:10	Train ride	
15:20 - 15:40	Chimpanzee talk	
15:20 - 15:40	Train ride	
15:50 - 16:10	Train ride	

Presenter	Lunch time

(Total for Question 9 is 4 marks)

TOTAL FOR PAPER IS 48 MARKS





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