

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**



15 – 19 June 2015

**Time: 1 hour 30 minutes**

Paper Reference

**FSM02/01**

**You must have:**

Pen, calculator, HB pencil, eraser, ruler graduated in cm and mm, protractor, pair of 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.*
- **Where you see this sign 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.**



## Advice

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

Turn over ►

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P 4 5 1 9 2 A 0 1 2 0

**PEARSON**

### Section A: Keeping fish

Answer all questions in this section.

Write your answers in the spaces provided.

- 1 Cal runs a website for people interested in keeping fish.

Zeenat wants to buy a fish tank.

She finds this information on Cal's website about fish tank sizes.

tank	length	width	total weight when filled with water
marine	450 mm	250 mm	30 kg
coral	600 mm	300 mm	58 kg
aqua	900 mm	300 mm	111 kg
tropic	1200 mm	300 mm	145 kg

Zeenat wants a fish tank with

length less than 1 metre

width 30 cm

total weight when filled with water less than 100 kg.

(a) Choose a fish tank for Zeenat.

(1)

Tick (✓) your answer from the list below.

marine ( )

coral ( )

aqua ( )

tropic ( )



Cal sees this question on his website.

Is a 125 watt heater powerful enough for my 81 litre tank?

Cal uses this rule

**Each 10 watts of heater power keeps 4.5 litres of water at 25°C**

Cal answers

No, you need at least 180 watts of heater power.

(b) Has Cal used his rule correctly?  
Show a check of your working. (4)

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



Large empty rectangular box for showing working.

Write your check in the box below.

Empty rectangular box for writing a check.



Another visitor leaves this question for Cal.

My fish tank is rectangular.  
The length is 450 mm and the width is 250 mm.

Are one and a half bags of gravel enough for my fish tank?

Cal knows one bag of gravel covers an area of  $900 \text{ cm}^2$  in a fish tank.

(c) Are one and a half bags of gravel enough for this fish tank?

(4)

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



**(Total for Question 1 is 9 marks)**



2 Cal is going to make a video about fish food for his website. He is going to make a mixture from powder and salt water.

Cal knows

1 teaspoon of powder weighs 2 grams

70% of the powder will turn into good fish food.

Cal wants 15 grams of good fish food from the mixture.

(a) How many teaspoons of powder does Cal need to make 15 grams of good fish food?

(3)

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



A large empty rectangular box for writing the solution to the problem.



Cal writes down what he has to do on Tuesday.  
He is going to start at 9.30 am.

Reply to 3 web messages	15 minutes each
Finish off video	2 hours
Upload video when finished	20 minutes
Clean out fish tanks	1 hour and 45 minutes
Get ready for work at 3.30 pm	$\frac{1}{2}$ hour
Lunch at 1 pm	30 minutes

Cal thinks he can complete everything before he goes to work at 4 pm.

- (b) Make a time plan for Cal.  
Show the time he must start each activity.

(4)



Use the box below for your time plan.



**(Total for Question 2 is 7 marks)**



**Section B: Elderly care**

**Answer all questions in this section.**

**Write your answers in the spaces provided.**

- 3** Petal is the manager of an elderly care unit.  
She needs a data collection sheet to record meal choices on Monday.

For breakfast, a patient can choose from

- 1** tea or coffee
- 2** juice or fruit
- 3** porridge or bacon

For lunch, a patient can choose from

- 1** soup or melon
- 2** fish or lamb
- 3** cake or trifle

There are 5 patients on Acorn ward.  
Each patient must choose 3 items for breakfast and 3 items for lunch.

Petal wants to record the choices for 5 patients on one sheet.

(a) Design a data collection sheet for Petal.

(3)





Show your data collection sheet in the box below.



Petal needs to plan the staffing for the unit for next week.  
The week goes from 8 am Monday to 8 am the following Monday.

The table shows the number of managers and the number of carers she needs.

number of patients	Day shifts 8 am – 6 pm (10 hours)		Night shifts 6 pm – 8 am (14 hours)
	number of managers	number of carers	number of carers
Up to 9	1	3	1
10 – 16	1	4	2
17 – 30	1	5	3
31 – 40	1	6	4
41 – 50	1	7	5
51 – 60	1	8	6

Petal knows

- 46 patients will be in the unit for the whole week
- an extra 8 patients will come in on Saturday at 8 am.

Petal thinks the total hours she should book carers to work is 900 for this week.

(b) Is Petal correct?  
Show why you think this.

(5)

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





A large rectangular area with a double-line border, intended for writing an answer. The inner rectangle is slightly smaller than the outer one, leaving a margin.

**(Total for Question 3 is 8 marks)**



P 4 5 1 9 2 A 0 1 1 2 0



- 4 Bushra is a care assistant on day shifts.  
She should start work at 08.00

Here is a list of times that Bushra started work last week.

Day	Mon	Tue	Wed	Thu	Fri
Start Time	08.05	08.10	08.30	08.20	08.00

Petal tells Bushra she was late by a mean average of 10 minutes last week.

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

(3)

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



Petal wants to see how many patients she can put in a ward.  
Each patient needs one bed space and one locker space.

The bed space is rectangular 2.4 m by 1.2 m.  
The locker space is square with sides 60 cm.

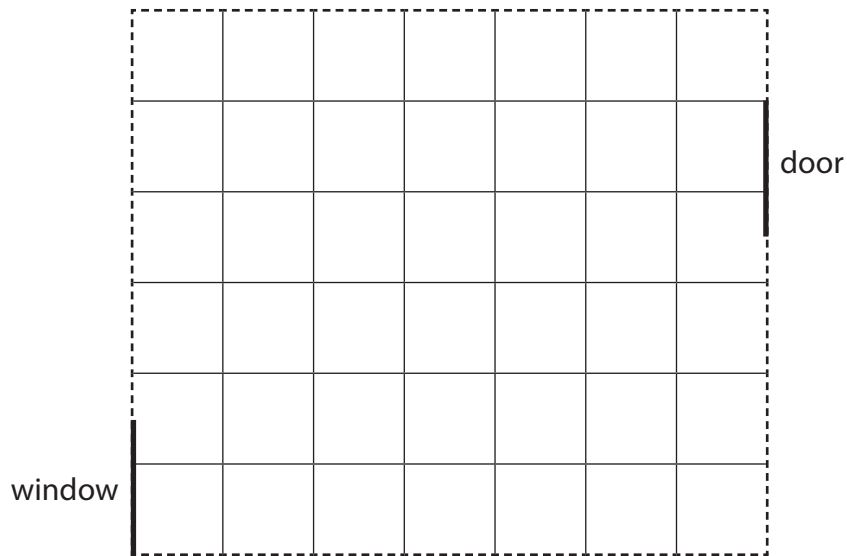
The head of each bed should be against the wall.  
Each patient needs a space of 1.8 m around their bed for their locker and privacy.

Petal draws a plan of the ward on a grid.  
She wants to put as many patients in the ward as possible.

- (b) Use the grid to show how to put as many beds and lockers as possible  
in the ward.

(3)





**Key:** one square on the grid is 1.2 m by 1.2 m in the ward  
 - - - - - wall

Bushra is caring for two patients on a special diet to gain weight. She records their weights over a 6 month period.

Patient 1						
Month	1	2	3	4	5	6
Weight	55 kg	56 kg	58.5 kg	57.4 kg	59.1 kg	58 kg
Patient 2						
Month	1	2	3	4	5	6
Weight	52.5 kg	52.5 kg	53 kg	54 kg	53.5 kg	54.5 kg

Bushra wants to know how the patients did on the special diet.

(c) Compare the weights of the two patients for Bushra. (2)

Write your answer in the box below.

**(Total for Question 4 is 8 marks)**



**Section C: Call centre**

**Answer all questions in this section.**

**Write your answers in the spaces provided.**

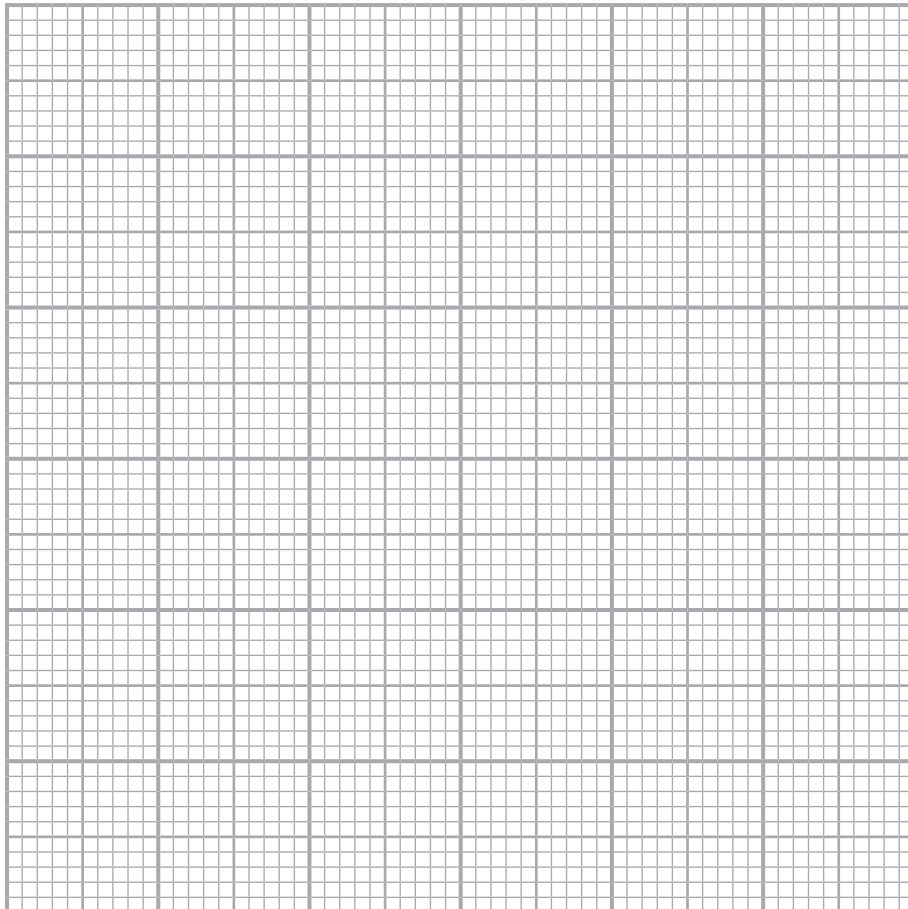
- 5 Jean is a team leader at a call centre. She has this information about the number of calls her team has handled so far this week.

Day	Inbound calls	Outbound calls
Mon	426	267
Tue	378	252
Wed	458	324

Jean has to make a graph or chart to display this information.

(a) Draw a graph or chart for Jean.

(3)



Jean wants to organise a team building event.  
She has a budget of £50 per person to spend.

22 people will go in total.

Jean finds these costs for the event.

Room hire **FREE of charge**  
Lunch £43.30 per person  
Pay for 7 lunches and get another lunch free

Jean wants some money spare to buy awards.

(b) How much money in total will Jean have left to spend on awards?

(4)

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



A large empty rectangular box for writing the solution to the problem.



Matt and Tom want to go on their lunch break at 12:30  
Jean says that they cannot go at the same time.

Matt says

Let's flip a coin.  
If I get tails, I go at 12:30  
That's a fair way to decide.

(c) Explain why this is a fair way to decide.

(1)

Use the box below to explain your answer.





Jean uses this formula to calculate the monthly bonus for each person in her team.

$$B = \frac{C}{3} \times 0.5$$

Where B = monthly bonus in pounds

C = extra calls

Tom wants to earn a bonus of £40 this month.

(d) How many extra calls must Tom handle to earn a £40 bonus?

(3)

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



(Total for Question 5 is 11 marks)



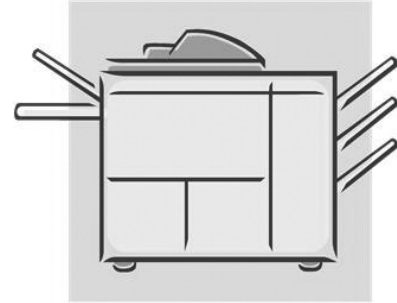
- 6 Jean needs to arrange a lease for a photocopier.  
She finds this information.

**Popular Print – 3 year lease**

Monthly fee – £22

20% off the monthly fee for the first 6 months

Black and white copies – 50p per thousand



Jean thinks the office uses 14 000 black and white copies each month.

She wants to know the total cost of the 3 year lease.

What is the total cost of the 3 year lease?

(5)

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





[Empty rounded rectangular box for answer]

**(Total for Question 6 is 5 marks)**



**TOTAL FOR PAPER IS 48 MARKS**



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