**Pearson Edexcel
Functional Skills**

Mathematics

Level 2

9 – 13 October 2017 **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 **black** ink or 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 ▶

P 5 5 9 5 3 A 0 1 2 0

Pearson

SECTION A: Commercial centre

Answer all questions in this section.

Write your answers in the spaces provided.

1 Jill is the manager of a commercial centre.

She rents out units in the commercial centre.
The monthly rent for a unit is £1.18 per square foot of floor area.

Jill needs to work out the monthly rent for a unit with a floor area of 1240 square feet.

(a) What is the monthly rent for this unit?
Show a check of your working. **(3)**

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

Use the box below to show your check.

☑

Jill has this data about the income of the commercial centre for 2016

Quarter 1	Quarter 2	Quarter 3	Quarter 4
£169 400	£195 600	£231 100	£198 300

Jill thinks the mean quarterly income in 2016 is just over £200 000

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

(2)

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

(Total for Question 1 is 5 marks)

2 Jill wants to find out how her customers rate the commercial centre.

She will collect this data from her customers

- unit size rented (small, medium, large)
- length of rental (3 months, 6 months, 12 months)
- rating (poor, good, excellent).

Jill needs to design a data collection sheet to record her findings.

(a) Design a data collection sheet for Jill.

(3)

Use the box below to show your data collection sheet.

DO NOT WRITE IN THIS AREA

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Companies can rent the units in the commercial centre for 3, 6 or 12 months.
Jill has this data about the units rented in 2016

		Number of units rented in 2016		
Length of rental		3 months	6 months	12 months
Unit size	small	10	7	5
	medium	3	8	6
	large	2	1	11

Jill needs to work out the yearly rental rate for the large units in 2016
She uses this formula.

$$R = \frac{N}{168} \times 100$$

R = yearly rental rate for the large units (%)
N = total number of months the large units are rented for in 2016

Jill thinks the yearly rental rate for the large units in 2016 was more than 85%.

(b) Is Jill correct?
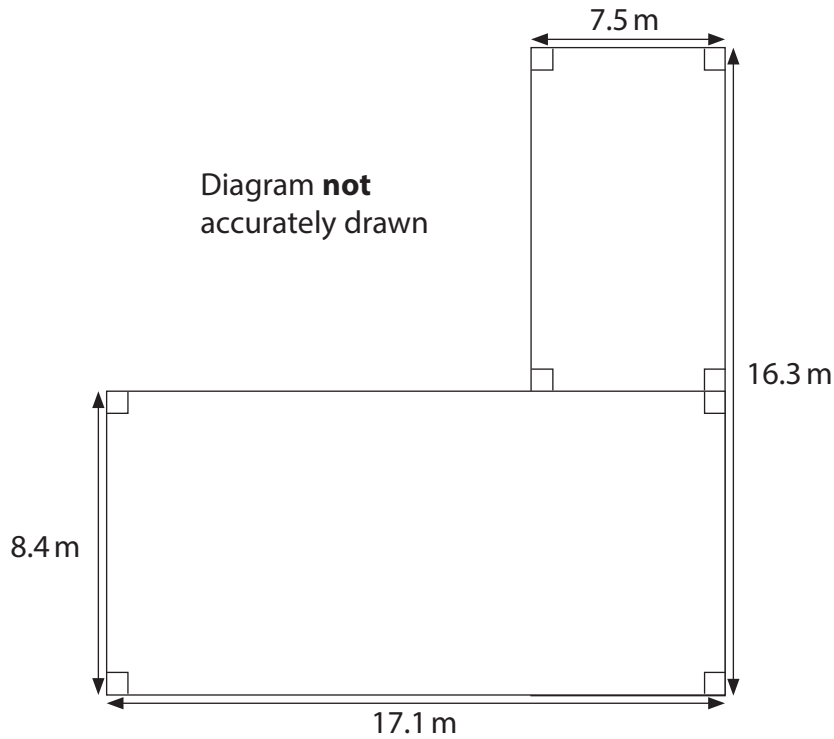   Show why you think this.   **(3)**

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

(Total for Question 2 is 6 marks)

3 Jill decides to combine two smaller units to make one large unit.
She has this sketch of the floor space of the two units.

Diagram **not**
accurately drawn

7.5 m

16.3 m

8.4 m

17.1 m

Jill wants to advertise this new large unit.
She needs to work out the floor area of the large unit in square feet.

Jill knows that $1\,m^2$ is 10.76 sq ft.
She thinks that the total floor area of the new unit is less than 2200 sq ft.

Is the total floor area of the new unit less than 2200 sq ft?
Show why you think this.

(5)

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

(Total for Question 3 is 5 marks)

Answer all questions in this section.

Write your answers in the spaces provided.

4 Derek is the manager of a software house.
He receives an order for new software from a company in Italy.

Derek needs to work out how much to charge the company for the software.
He has these notes.

> Software licence required for 3 offices
> Cost of licence per office £1599
>
> Installation will take 4 days
> Cost of installation £495 per day
>
> Add 3.85% surcharge to the total cost
>
> £1 is 1.16104 euros

Derek needs to charge the company in euros.
He thinks the total charge will be over 8000 euros.

Is Derek correct?
Show why you think this.   **(6)**

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

(Total for Question 4 is 6 marks)

P 5 5 9 5 3 A 0 9 2 0

5 Aziz goes to Italy to install the new software.

He checks in 2 bags at the airport.
One of the bags weighs 17.8 kg and the other bag weighs 10.6 kg.

Aziz can check in bags with a total weight of 23 kg for free.
He needs to pay £16.50 per each extra **whole** kg in weight over 23 kg.

Aziz thinks he needs to pay more than £80 in total for the extra whole kilograms.

Is £80 enough to pay for the extra weight?
Show why you think this.

(3)

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

(Total for Question 5 is 3 marks)

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6 Aziz needs to go from Rome to Naples and back by train.
He looks at the train timetable.

Rome (departure time)	Naples (arrival time)	Price (euros)
08:49	10:36	39.90
09:12	10:32	24.90
09:28	11:32	36.50
10:10	11:20	28.90
10:23	11:30	35.90
10:57	12:05	39.90

Naples (departure time)	Rome (arrival time)	Price (euros)
16:40	17:50	47.90
17:10	18:20	44.90
17:31	19:39	36.90
17:55	19:02	27.90
18:30	19:37	38.90
18:31	20:34	27.50

Aziz will leave his hotel in Rome after 9 am.
He allows 25 minutes to get from the hotel to the train station in Rome.

In Naples Aziz will spend
• at least 4 hours in meetings
• 1.5 hours for lunch.

Aziz needs to be back at his hotel in Rome by 8 pm.
He needs to buy the cheapest train tickets possible.

(a) Which train from Rome to Naples and which train from Naples to Rome should Aziz take?

(3)

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

Aziz decides to buy some olive oil in Naples.

The olive oil is sold in bottles of different sizes at these prices.

250 ml for 1.36 euros
500 ml for 2.46 euros
750 ml for 3.59 euros

Aziz wants to buy a total of 2.5 litres of olive oil.
He wants to pay as little as possible.

(b) How much will Aziz pay in total?
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 6 is 7 marks)

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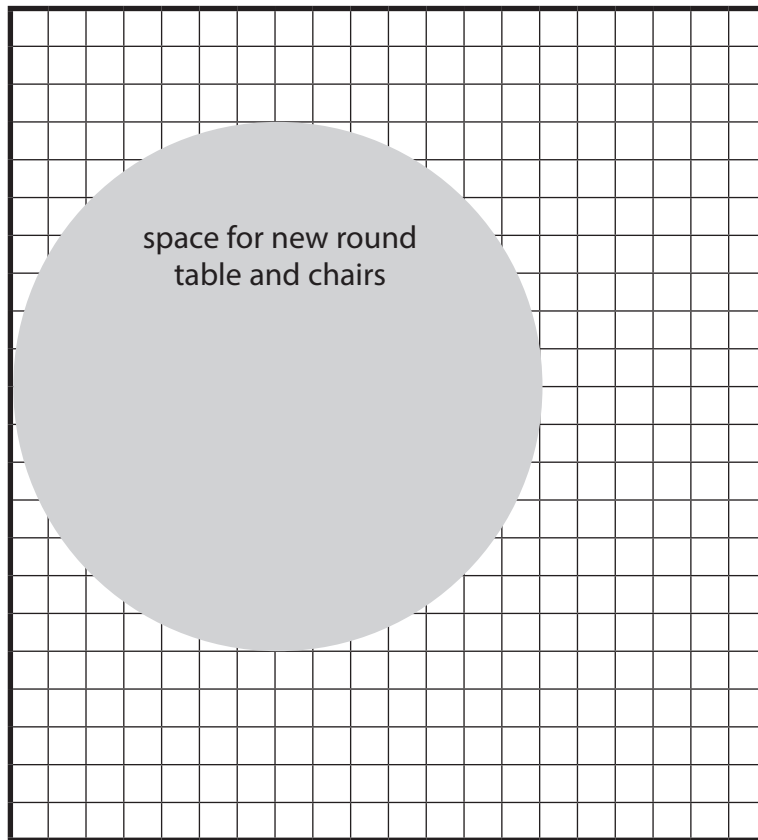
SECTION C: Housewarming dinner

Answer all questions in this section.

Write your answers in the spaces provided.

7 Tomiko is planning a housewarming dinner for her friends.
She wants to buy a new round table for her dining room.

Tomiko has this floor plan of her dining room.

She has shaded the total space needed for
the new round table and
1 extra metre all around the table for chairs.

space for new round
table and chairs

scale 1 : 50

Tomiko thinks that a round table with a diameter of 1500 mm is the biggest table that can fit in this space.

Is she correct?
Show why you think this. **(4)**

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

(Total for Question 7 is 4 marks)

8 Tomiko will roast some lamb for the dinner party.

She has these notes about the time she needs to prepare the lamb.

> Marinate the lamb for 2.5 hours
>
> Roast the lamb for 30 minutes for each pound plus 15 minutes at 180°C
>
> Rest the lamb for 20 minutes
>
> Serve immediately after resting

The lamb Tomiko will roast weighs 7.5 pounds.

She wants to start marinating the lamb at 10.30 am.
Tomiko thinks the lamb will be ready to serve by 5.30 pm.

(a) Is Tomiko correct?
   Show why you think this.
   (4)

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

Tomiko will also make pumpkin cheesecake.
She has this list of ingredients to make the cheesecake.

Pumpkin cheesecake
serves 11 people

200 g ginger biscuits
100 g butter
500 g double cream
600 g soft cheese
 75 g sugar
300 g pumpkin puree

Tomiko has 360 g of soft cheese.
She has plenty of the other ingredients.

Tomiko wants to make enough cheesecake for 8 people.

(b) Does Tomiko have enough soft cheese to make cheesecake for 8 people?
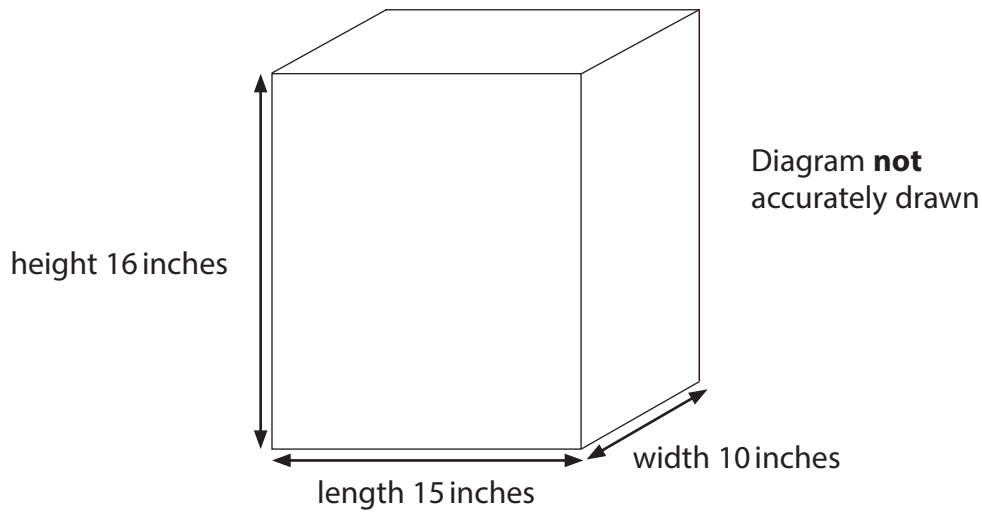
(3)

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

(Total for Question 8 is 7 marks)

Turn over ▶

9 Tomiko wants to buy a vase.

She has this space in a display cabinet for the vase.

Diagram **not** accurately drawn

height 16 inches

width 10 inches

length 15 inches

Tomiko finds a cylindrical vase she likes.
She finds this information.
The vase comes in different sizes.

Vase	height (inches)	base diameter (inches)	price
A	18	10	£65.90
B	15	11	£143.60
C	17	9	£69.99
D	13	6	£94.50
E	11	7	£75.90
F	14	8	£110.90

The shop offers Tomiko $\frac{1}{5}$ off the price of the vase.

She wants to buy the cheapest vase she can put in the display cabinet.

(a) Which vase should Tomiko buy?
How much will she pay in total for this vase?

(4)

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

Tomiko keeps the vase she buys in the display cabinet.

She wants to put flowers in the vase.

(b) Explain why this vase may not be appropriate for Tomiko to use.

(1)

Use the box below to write your explanation.

(Total for Question 9 is 5 marks)

TOTAL FOR PAPER IS 48 MARKS

P 5 5 9 5 3 A 0 1 9 2 0

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