Paper Code: FSQC208P

Level **2**

MOCK Highfield Functional Skills Qualification in Mathematics at Level 2

Information for centres and learners

- **Learners taking this examination must also complete papercode FSQN208P.**
- **Only remove the examination paper from the sealed envelope when instructed to do so.**
- **Under no circumstances should you use an unsealed examination paper.**
- Complete **ALL** questions.
- Use **BLACK** or **BLUE** ink.
- You are **NOT** allowed any assistance to complete the answers. You **MAY** however use a **CALCULATOR**.
- Marks are awarded for **SHOWING** your **WORKING OUT**.
- Use a **PENCIL**, **ERASER**, **RULER** and **PROTRACTOR** (as necessary) when drawing diagrams and charts.
- **SIGN** the declaration before leaving.

The duration of this examination is **1 HOUR 50 MINUTES**. The examination consists of **16 QUESTIONS** and is worth **53 MARKS**.

Complete the following

First Name *(in full)*

Middle initial

Last Name

Date of Birth *(8 digits)*

D D M M Y Y Y Y

Highfield Learner ID

Approved Centre Number *(5 digits)*

Nominated Tutor Number *(5 digits)*

Examination Date *(8 digits)*

D D M M Y Y Y Y

Is this a resit examination? YES NO

Examination Start Time *(24 hour clock)*

H H M M

Examination Finish Time *(24 hour clock)*

H H M M

Calculator Test

Learner declaration

I confirm:

- I removed the examination paper from the sealed envelope.
- I received no help in answering the questions in this examination paper.
- I am the person stated above on this form.
- I will not discuss the content of the examination with anyone else.

Learner signature: ....

1

Put these numbers in order, starting with the smallest.

$$0.4 \quad 0.54 \quad 0.395 \quad 0.099$$

Write the answer in the box below.

(1 mark)

Answer: _____

2

Calculate the value of P

$$P = \frac{0.75 \times 0.095}{0.005}$$

Write the answer in the box below.

(1 mark)

Answer: _____

3

Jude earns £1,653 per month.

He pays £578.55 in rent.

What is £578.55 as a percentage of £1,653?
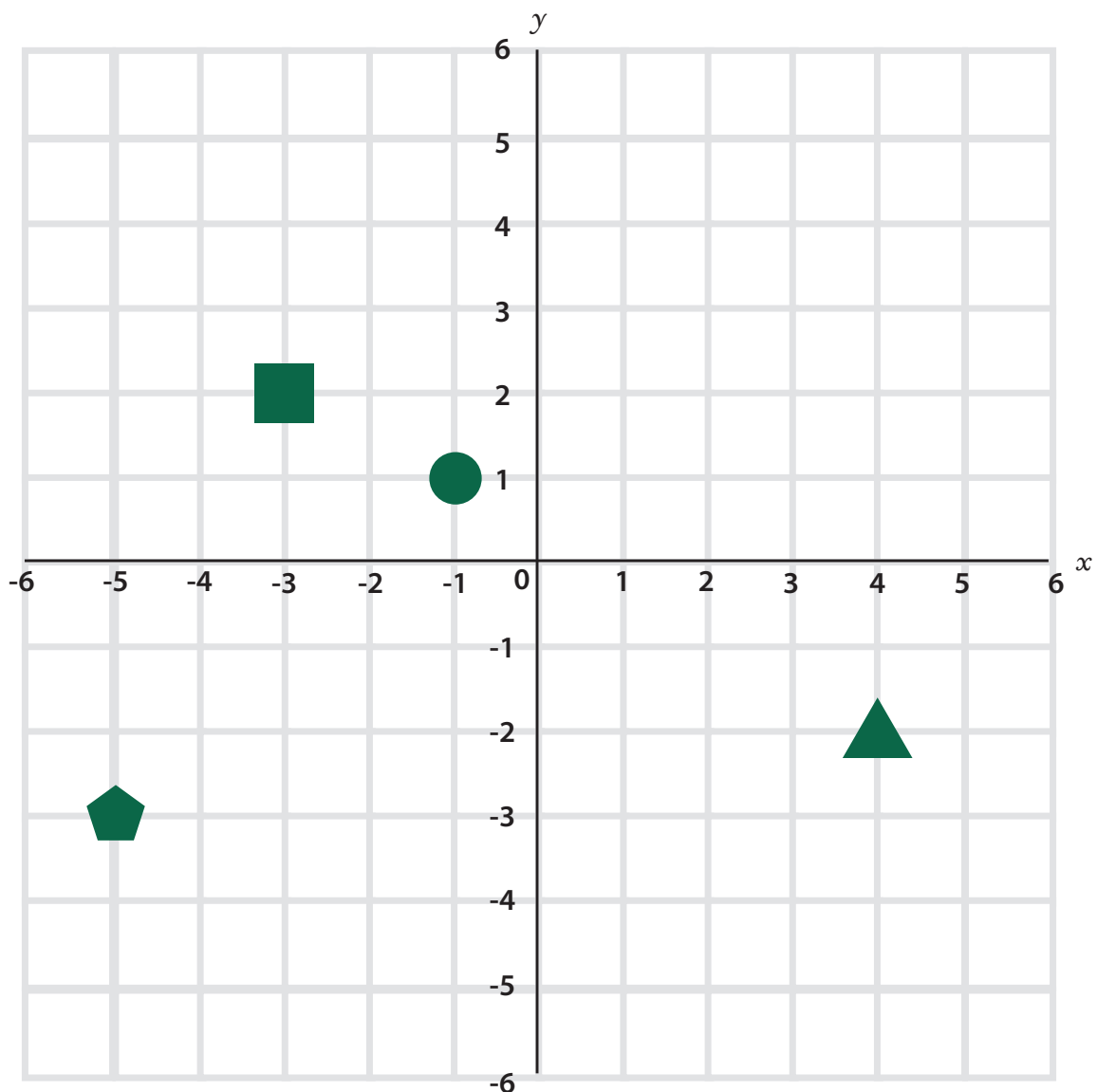
Show your working out and write the answer in the box below.

(2 marks)

Answer: _____%

4

What are the coordinates of the pentagon on the grid below?

Write the answer in the box below.   *(1 mark)*

Answer: _____

5

What is the median of these weights?

2.54kg   3.91kg   3.75kg   3.78kg   2.84kg   3.89kg   4.05kg   2.96kg

Show your working out and write the answer in the box below.

(2 marks)

Answer: _____kg

6

Calculate

$$(6 + 3 \times 2)^2$$

Show your working out and write your answer in the box below.

(1 mark)

Answer: _____

7

Which of the following is larger?

$$\frac{3}{8} \text{ of } 1000 \quad \text{or} \quad \frac{5}{12} \text{ of } 930$$

Show your working out and write the answer in the box below.

(2 marks)

Answer: _____

8

Which of these fractions and mixed numbers is equivalent to 130%?

$$\frac{33}{100} \qquad 1\frac{1}{3} \qquad \frac{33.3}{100} \qquad \frac{13}{10} \qquad \frac{330}{300}$$

Write the answer in the box below.

(1 mark)

Answer: _____

9

This table shows the weights, in kg, of 12 people.

Weight (W)	Frequency
$55 \leq W < 60$	4
$60 \leq W < 65$	6
$65 \leq W < 70$	2

Estimate the mean weight of the 12 people.

Show your working out and write the answer in the box below.

(2 marks)

Answer: _____

Scenario A

Highfield Property Developers

10

You are working for Highfield Property Developers.

The company buys properties, renovates them and then sells them.

They hope to make a profit on every property they sell.

These are the properties the company has bought and sold in the last 6 months.

Type of property	Purchase price	Renovation costs	Selling price
House	£299,950	£27,500	£355,250
Flat	£99,500	£7,450	£118,000
Flat	£135,000	£12,995	£175,495
House	£175,250	£59,000	£225,000
House	£325,000	£12,000	£348,000
Flat	£69,000	£9,050	£95,000
House	£225,450	£16,595	£275,000

Profit = selling price – (purchase price + renovation costs)

The manager says

   'The mean profit on a flat is about 12% more than the mean profit on a house.'

Is the manager correct?

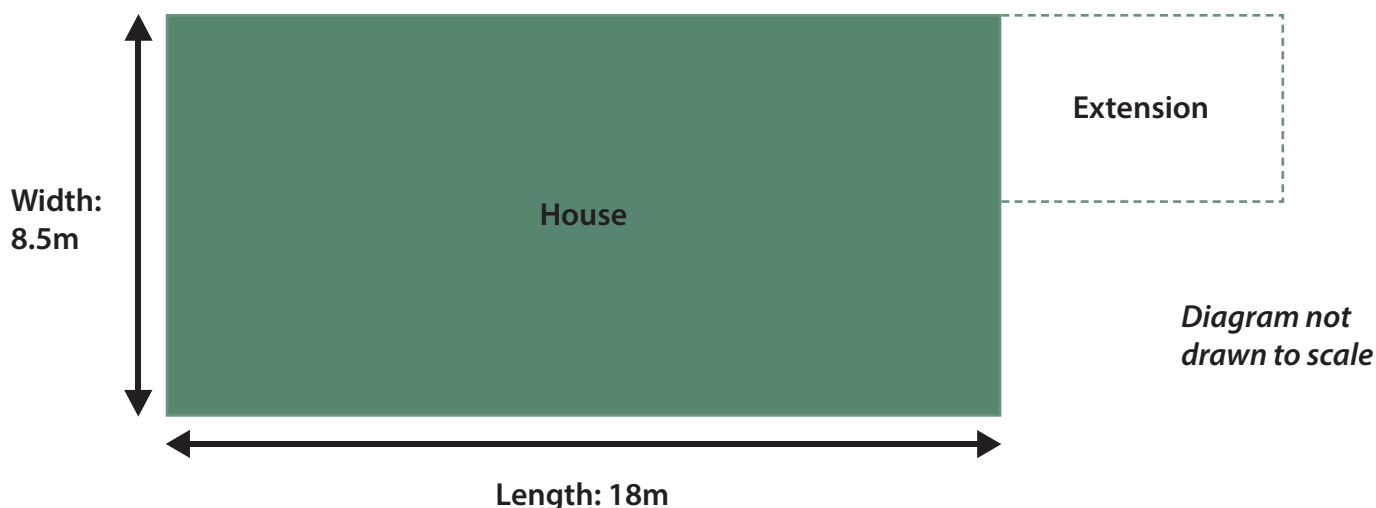Show your working out and write the answer in the box below.

(7 marks)

Answer: _____

11

Highfield Property Development have bought a house. They want to build an extension on the side of the house.

A plan for the extension is shown below.

Width: 8.5m

House

Extension

Diagram not drawn to scale

Length: 18m

You need to work out the dimensions for the extension. You are told that it must be:

• 40% of the width of the current house
• 15% of the total area of the current house

What will the dimensions of the extension be?

Show your working out and write the answer in the box below.

(6 marks)

Answer: Width_____m Length_____m

12

The manager has 4 houses to look at today; A, B, C and D.

This is a sketch showing the manager's office, the houses and the distance between them.

A

Diagram not drawn to scale

35km

42km

35km

Office

39km

C

B

27km

56km

49km

D

Key:

Main road

Minor road
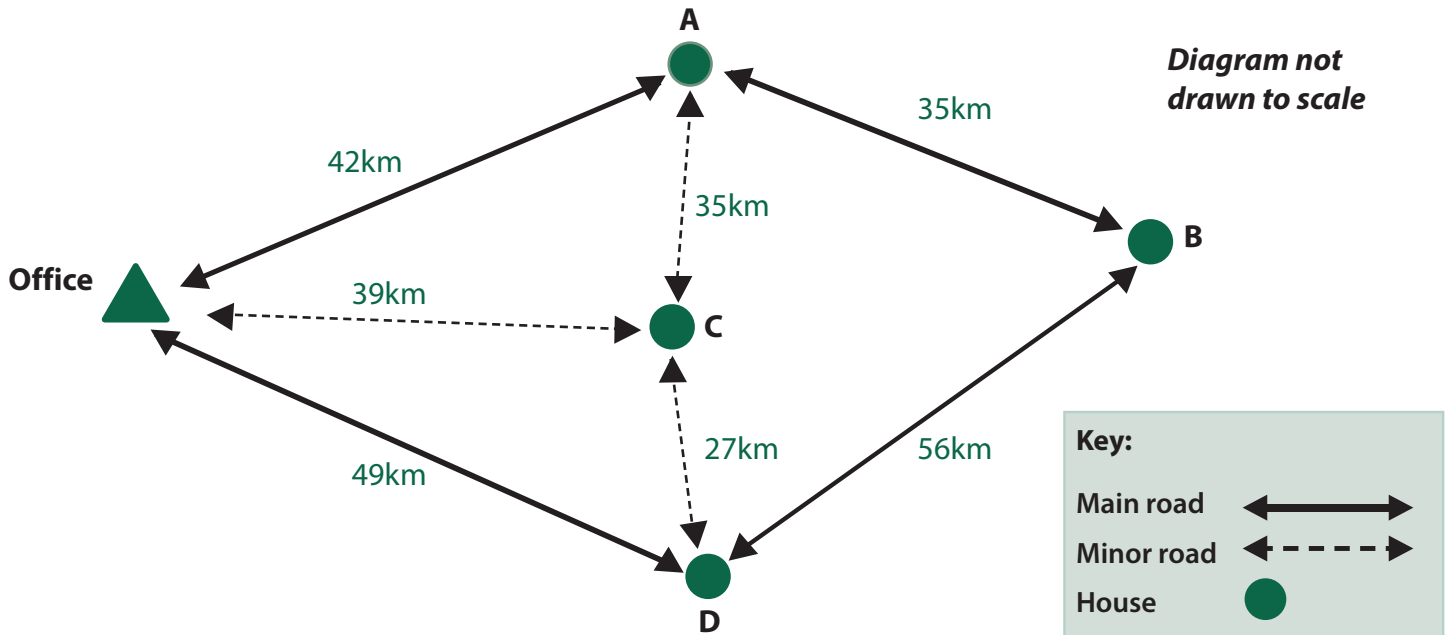
House

Speed = distance ÷ time

The manager will leave his office at 10 am and travel to each house once only and then return to his office.

He will spend 20 minutes at each house.

His average speed on the main roads is 70 kilometres per hour.

His average speed on the minor roads is 40 kilometres per hour.

He can visit the houses in any order.

What time will the manager be back at his office?

Show your working out and write the answer in the box below.

(6 marks)

Answer: _____

Scenario B

Highfield Farm

13

You are working at Highfield Farm.

You are buying a new tractor.

You will be getting a loan for the full cost of the tractor.

- The tractor will cost £64,950.
- The **compound interest** rate is 4% per annum, which will be added to the total cost of the tractor up front.
- You will pay back the loan in 36 equal monthly payments.

What will you pay each month?
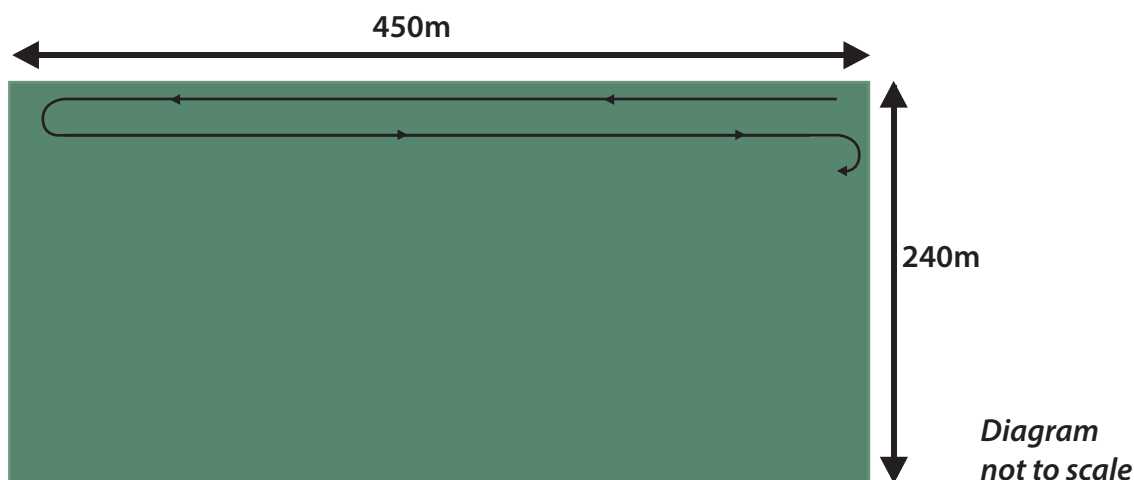
Show your working out and write the answer in the box below.

(5 marks)

Answer: £_____

14

You have a rectangular field and need to cut the grass.

You need to know how much fuel you will use.

Diagram not to scale

450m

240m

You will drive the tractor along the field and back as shown in the diagram.

- The tractor will cut a 2.5-metre-wide strip of grass behind it.
- It will drive at a constant 5 miles per hour.
- The tractor uses 7 litres of fuel per hour.
- 1 mile = 1.6 kilometres.

How much fuel will the tractor use to cut the whole field of grass?

Show your working out and write the answer in the box below.

(5 marks)

Answer: _____ litres

15

You are harvesting the corn.

This is a plan of the field you have grown corn in.

140m

Diagram not to scale

125m

67m

183m
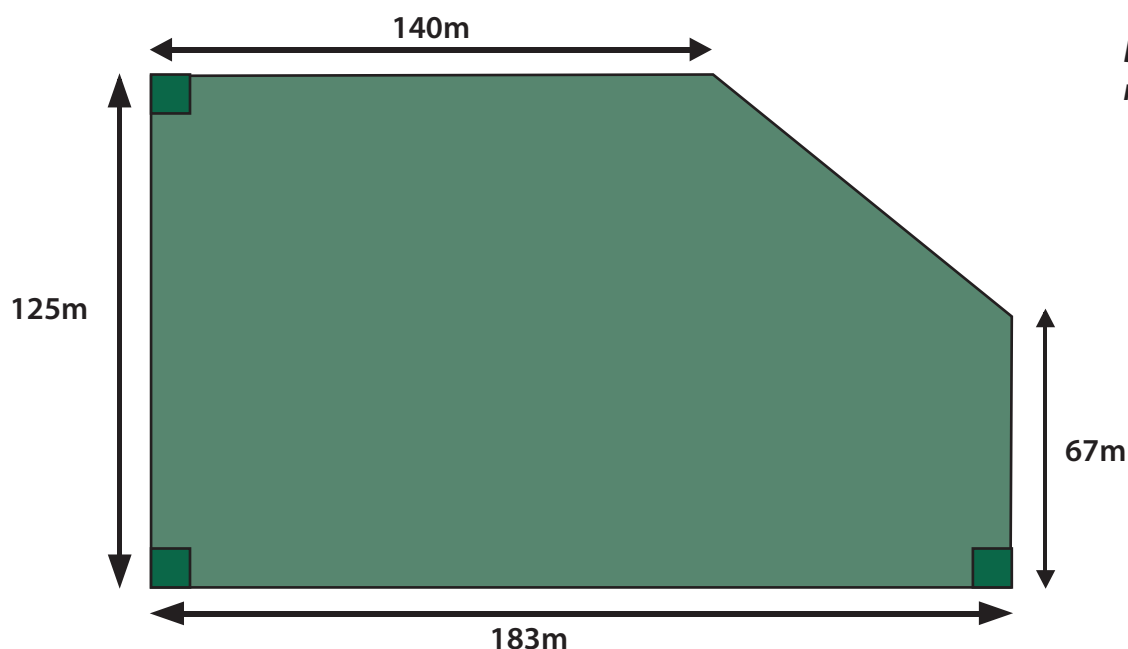
- The mean weight of corn grown per acre is 3.75 tons.

- The selling price of corn is £179.40 per ton.

- 1 acre = 4046.86 m^2.

Work out the total value of the corn grown in the field.

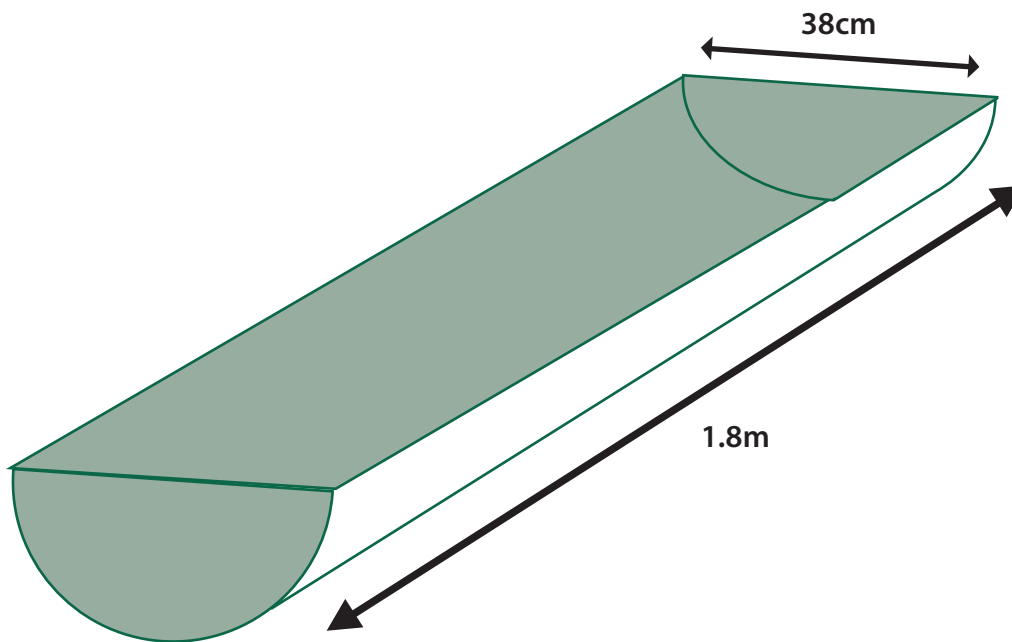Show your working out and write the answer in the box below.

(6 marks)

Answer: £_____

16

You need to have a total of 1000 litres of water available for your animals.

You use troughs to hold the water.

The ends of the troughs are semi circles.

You use the following formula to calculate the volume of water each trough will hold.

$$V = \frac{(\pi r^2 \, l)}{2}$$

Where:

V = volume of water in cm³

r = radius of cross section in cm

l = length of trough in cm

Use π = 3.14

1 litre = 1000 cm³

You have estimated that one trough is approximately a fifth of the 1000 litres of water you need.

Are you correct?

Show your working out and write the answer in the box below.

(5 marks)

Answer: _____

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	TOTAL
Mark(s) available	1	1	2	1	2	1	2	1	2	7	6	6	5	5	6	5	53
Marker																	
Moderator																	

Marker:		Moderator:	
Date:		Date:	

Level 2

Mathematics

We listen and respond