

Level 2 Functional Skills Mathematics
Sample 3

Duration: 25 minutes
Total marks: 15 marks

SECTION 1 – CALCULATOR NOT PERMITTED

Candidate name (first, last)

First

Last

Candidate enrolment number

Date of birth (DDMMYYYY)

Assessment date (DDMMYYYY)

Centre number

Candidate signature and declaration*

***I declare that I had no prior knowledge of the questions in this assessment and that I will not share information about the questions.**

Please check that your name is correctly printed on the candidate barcode label. If not, please tell the invigilator before the start of the exam.

You should have the following for this assessment:

- a pen with black or blue ink
- a pencil
- an eraser
- a 30cm ruler.

You must NOT use a protractor.

You must NOT use a calculator for Section 1.



General instructions

- Read through each question carefully.
- You may use a dictionary.
- Write all your answers in this booklet.
- Check your calculations and check that your answers make sense.

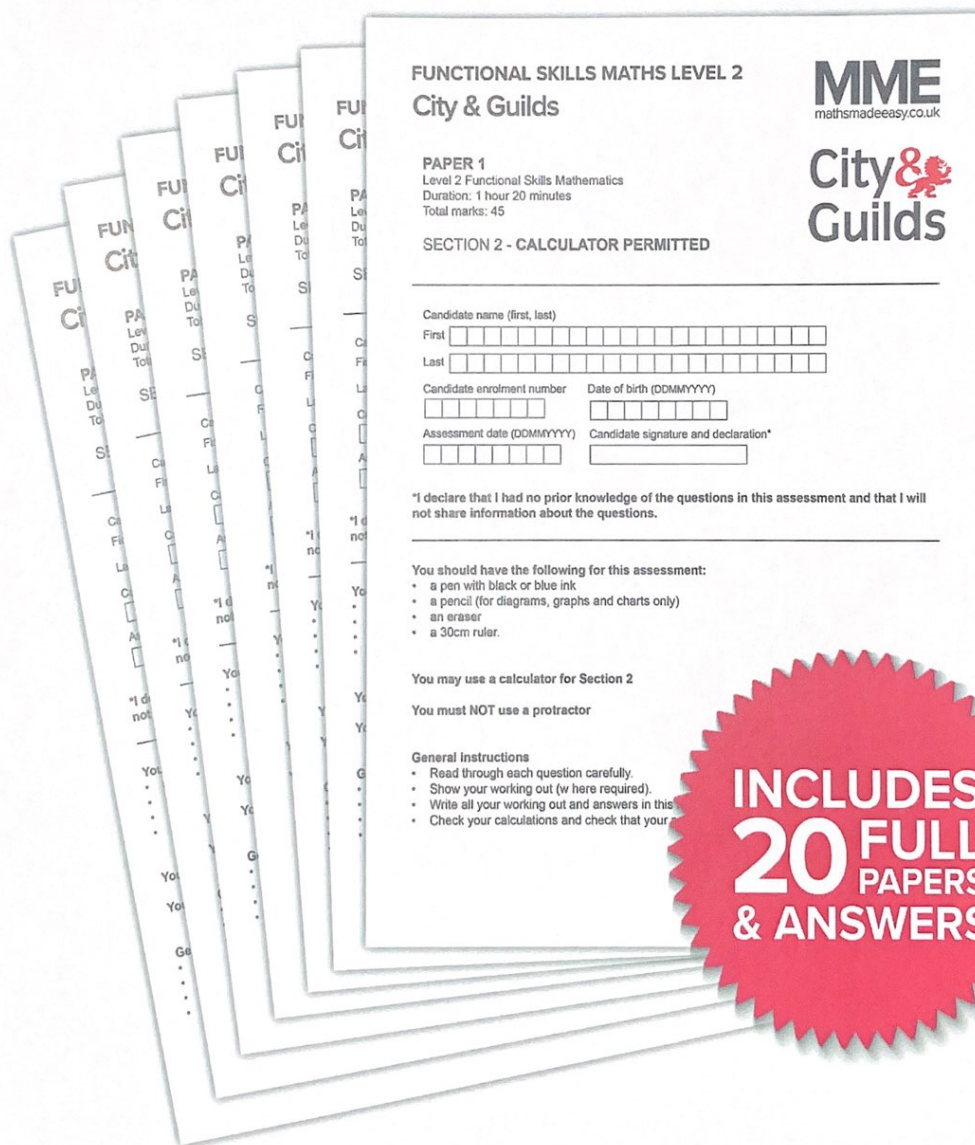


20 Functional Skills Maths

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SECTION 1 – CALCULATOR NOT PERMITTED

There are **15** marks available in this section.

You should check all your work as you go along.

You must **not** use a calculator in this section.



Q1

$$531 \times 1.4 =$$

$$\underline{743.4}$$

(1 mark)

Q2

$$5^4 =$$

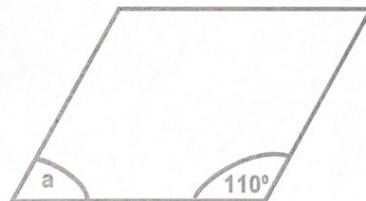
$$\underline{625}$$

(1 mark)

Q3

The following diagram shows a parallelogram.

Diagram not to scale



What is the size of angle a?

$$180^\circ - 110^\circ = 70^\circ$$

$$\text{Angle } a = \underline{70}^\circ$$

(1 mark)

Q4

Which one of the following works out to the largest number?

(tick one box)

A $\frac{3}{4} \times 8 = 6$ ☐

B $\frac{2}{6} \times 12 = 4$ ☐

C $\frac{3}{2} \times 10 = 15$ ☒

D $\frac{3}{12} \times 36 = 9$ ☐

(1 mark)

Q5

What is 52% as a fraction in its lowest terms?

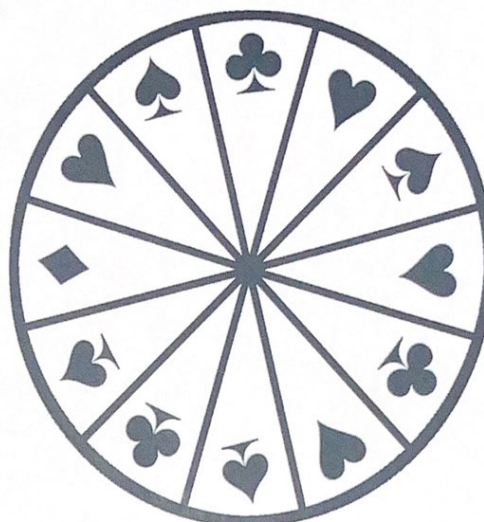
$$52\% = \frac{52}{100} = \frac{26}{50} = \frac{13}{25}$$

$$\frac{\boxed{13}}{\boxed{25}}$$

(1 mark)

Q6

Winner

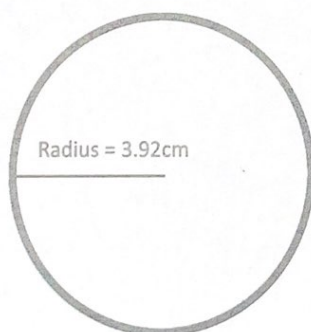


If the wheel is spun again what is the chance of ♦ being the winner?
Give your answer as a fraction.

$$\frac{1}{12}$$

(1 mark)

Q7



Which calculation gives an approximation of the area of this circle in cm^2 ?

(tick one box)

A $3 \times 8 =$ ☐

B $3 \times 4 =$ ☐

C $3 \times 16 =$ ☒

D $3 \times 9 =$ ☐

(1 mark)

Q8

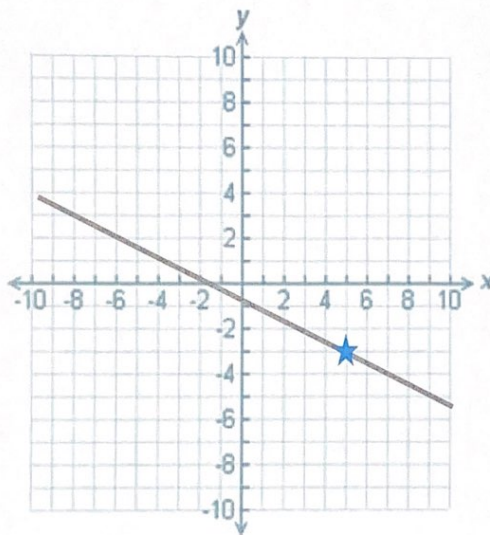
Calculate $\frac{8 - 4^2}{8} =$

$$= \frac{8 - 16}{8} = -\frac{8}{8} = -1$$

-1

(1 mark)

Q9



What are the coordinates of the line at point ★?

(tick one box)

- A (-5, 3) ☐
- B (5, -3) ☒
- C (-3, 5) ☐
- D (3, -5) ☐

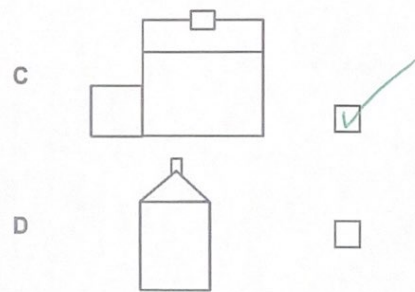
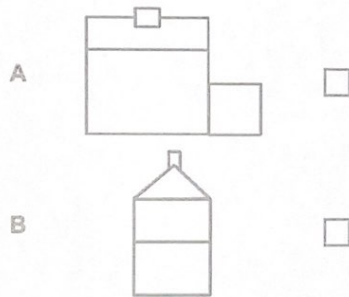
(1 mark)

Q10



Which one of the following is the front elevation of the house from the view shown?

(tick one box)



(1 mark)

Q11

A commuter uses a bus and a train to get to work.

The train is more than 5 minutes late $\frac{1}{6}$ of the times they use it

The bus is more than 5 minutes late $\frac{3}{5}$ of the times they use it

What is the probability that **both** the bus and train will be more than 5 minutes late?

Show your working

$$\frac{1}{6} \times \frac{3}{5} = \frac{3}{30} = \frac{1}{10} = 0.1$$

0.1

(2 marks)

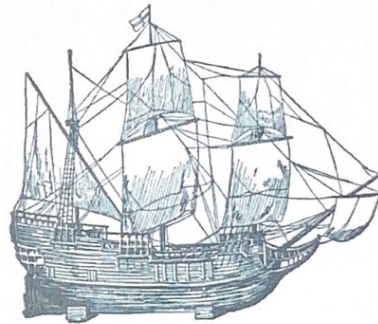
Q12

A model maker wants to make a model of a ship

He will use a scale of 1:50

The ship was 100ft long

1 foot = 0.3 m



How long will the model ship be in cm?

Show your working

$$\text{length of model ship} = 100 \div 50 = 2 \text{ feet}$$

$$2 \text{ feet} = 2 \times 0.3 = 0.6 \text{ m} = 60 \text{ cm}$$

60

cm

(3 marks)

End of Section 1

City & Guilds

Total marks: 45 marks

Candidate name (first, last)

[illegible]

Date of birth (DDMMYYYY)

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Centre number

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Candidate signature and declaration*

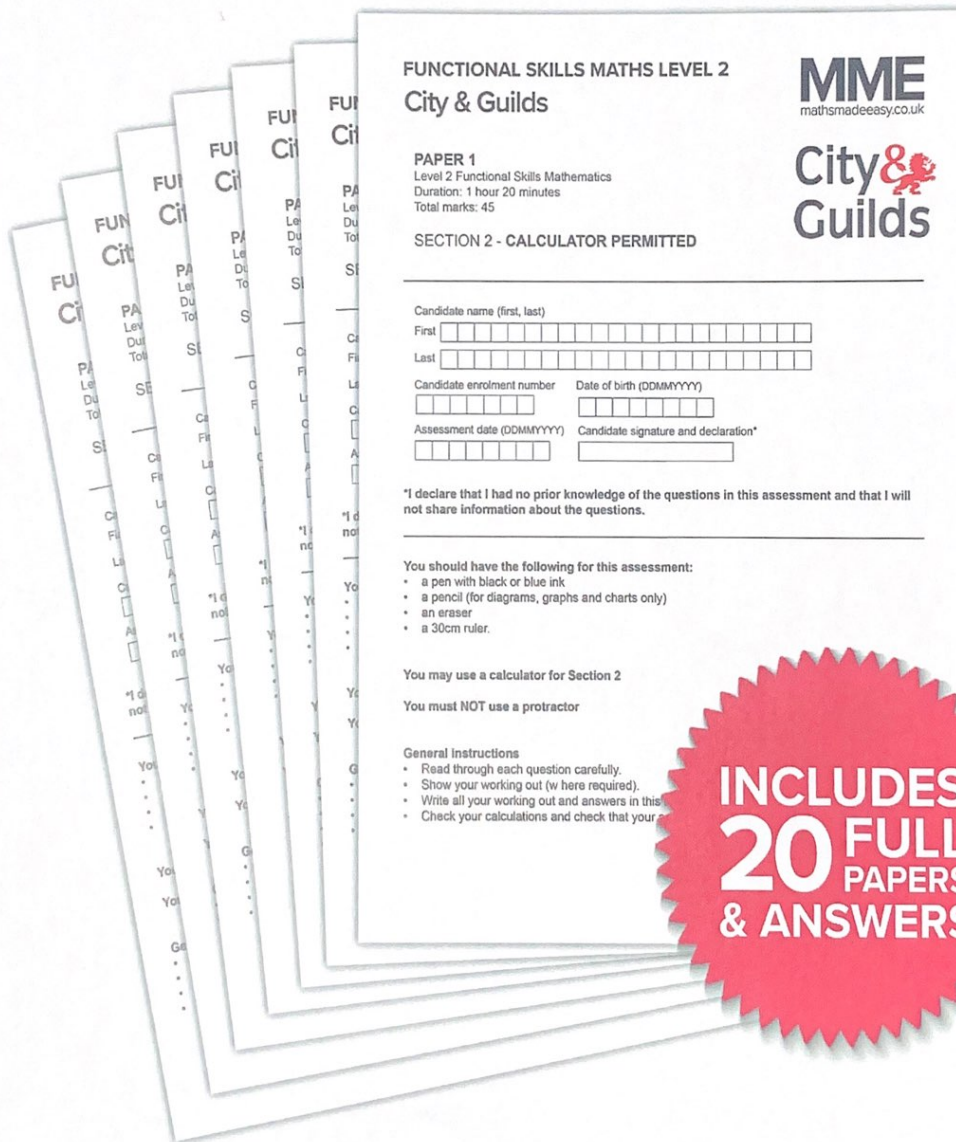
- 

- Read through each question carefully.
- You may use a dictionary.
- Show your working out (where required).
- Write all your working out and answers in this booklet.
- Check your calculations and check that your answers make sense.
- There are additional pages at the back of this booklet if you run out of space or ask the invigilator if you need additional sheets of paper.

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MME.

SECTION 2 – CALCULATOR PERMITTED

There are **45** marks in this section.

You should check all your work as you go along.

You may use a calculator.



Q1

What is 12% of £5300?

$$0.12 \times 5300 = £636$$

£ 636

(1 mark)

Q2

What is 23.3×0.463 correct to three decimal places?

10.788

(1 mark)

Q3

Which one of the following lists is in decreasing order?

(tick one box)

A $\frac{315}{100}$ $\frac{1500}{924}$ $\frac{200}{57}$ $3\frac{2}{7}$ ☐

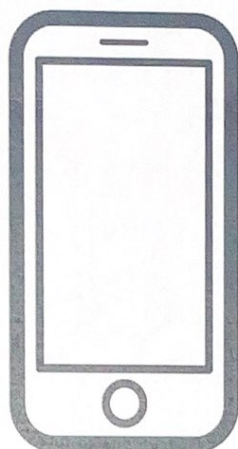
B $\frac{200}{57}$ $3\frac{2}{7}$ $\frac{315}{100}$ $\frac{1500}{924}$ ☒

C $\frac{200}{57}$ $\frac{1500}{924}$ $3\frac{2}{7}$ $\frac{315}{100}$ ☐

D $3\frac{2}{7}$ $\frac{1500}{924}$ $\frac{315}{100}$ $\frac{200}{57}$ ☐

(1 mark)

Q4



£240

(including
VAT)

What is the price of the phone before VAT of 20% is added?

$$£240 \div 1.20 = £200$$

£200

(1 mark)

Q5

The results for a local election were

Candidate One	602	votes
Candidate Two	553	votes
Candidate Three	350	votes

What fraction of the votes did the winner get?

Give your answer in its simplest form.

$$\frac{602}{602 + 553 + 350} = \frac{2}{5}$$

2

5

(1 mark)

Q6

A parent fills in a medical form about her 2-year-old child.

The parent measures her child's height with a tape measure and writes that the child is 3m tall.

The receptionist at the surgery thinks that the parent has made a mistake.

Is the receptionist correct?

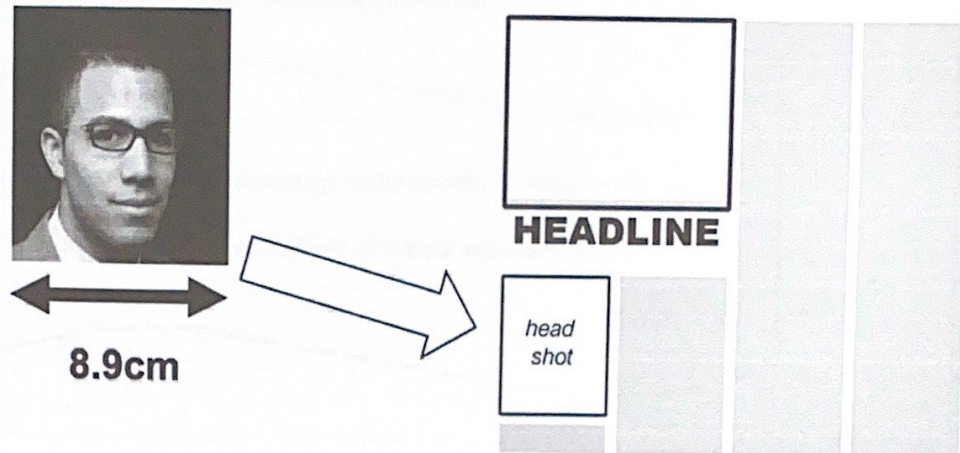
Is the receptionist correct? (tick one box) Yes ☒ No ☐

Explanation

- The ~~parent~~ parent must have misread metres for feet on the tape measure
- The child would be as tall as the ceiling. (1 mark)

Q7

An editor needs to change the width of this photo to fit in a magazine.



The photo needs to be 32 mm wide.

What percentage of the original width will the changed photo be?

Show your working

$$\frac{32}{8.9} = 35.9550561\%$$

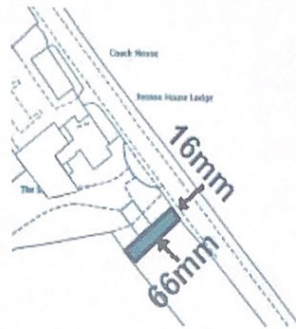
_____ %

(2 marks)


Q8

An estate agent needs to know the area of a plot of building land.

This plan shows the building land.



Scale 1:1250

 = building land for sale

What is its area?

Show your working

$$16 \times 1250 = 20000 \text{ mm} = 20 \text{ m}$$
$$66 \times 1250 = 82500 \text{ mm} = 82.5 \text{ m}$$

$$\text{Area} = 20 \times 82.5 = 1650 \text{ m}^2$$

1650 m²

(3 marks)

Q9

An architect designs a shop refit.

The architect needs to work out the weight of an oak panel.

The oak panel measures 0.06 m x 0.9 m x 1.5 m

The density of oak is 700 kg per m³

What is the weight of the oak panel in kg?

Show your working

$$\text{Volume} = 0.06 \times 0.9 \times 1.5 = 0.081 \text{ m}^3$$

$$\text{Mass} = 0.081 \times 700 = 56.7 \text{ kg}$$

Weight of the oak panel 56.7 kg

(3 marks)

Q10

A cook needs to cook a turkey to be ready by 6pm.

The cook will start cooking the turkey at 1:30pm

Turkey needs to be cooked for 45 minutes per kg of total weight plus 20 minutes and then left to rest for 45 minutes.

The cook has a 4.4kg turkey.

Has the cook allowed enough time? Explain your answer using figures.

Show your working

Has the cook allowed enough time? (tick one box) Yes ☒ No ☐

Explanation

$$\begin{aligned}\text{Time} &= (45 \times 4.4) + 20 + 45 \\ &= 263 \text{ minutes} = 4 \text{ hours } 23 \text{ minutes}\end{aligned}$$

4 hours 23 minutes later than 1:30pm
is 5:53pm, so the cook has
allowed enough time.

(4 marks)

Q11

A cafe makes its own coffee blend by mixing different coffee beans together.

It uses Brazilian beans and Kenyan beans in a ratio of 4:1

The manager needs to mix enough beans to make **120 cups of coffee**.

Each cup of coffee needs 85g of beans.

He needs to know what weights of beans to use.

What are the weights of the beans he needs?

Show your working

$$85 \times 120 = 10200\text{g} = 10.2\text{ kg}$$

$$10.2 \div 5 \text{ parts} = 2.04\text{ kg per part}$$

$$4 : 1$$

$$8.16\text{ kg} : 2.04\text{ kg}$$

$$\text{Brazilian beans} \quad \underline{8.16} \text{ kg}$$

$$\text{Kenyan beans} \quad \underline{2.04} \text{ kg}$$

(4 marks)

Q12

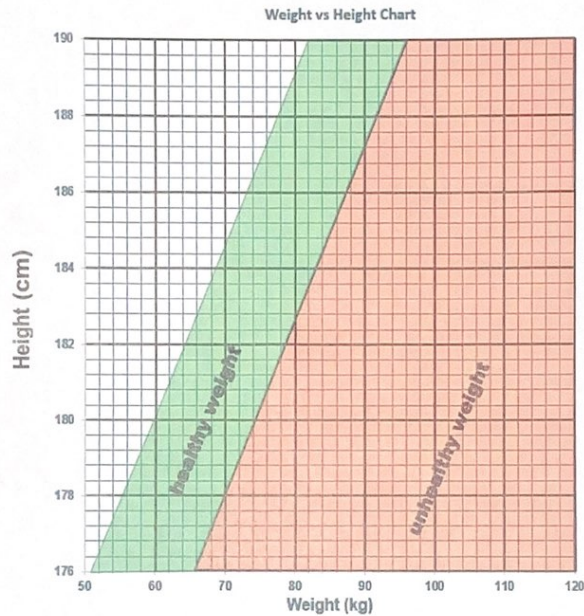
A man is 185cm tall and weighs 98kg. He wants to reach a healthy weight.

A doctor says he can lose 0.75kg a week if he follows a diet **and** exercises to burn 600 calories a week.

He plans his diet and decides to use Yoga exercise to burn 600 calories a week.

He will use one-hour Yoga classes that burn 200 calories. Each class costs £6.

He has £360 he can spend on Yoga classes



Does he have enough money to pay for the Yoga classes?

Explain your answer using figures.

Show your working
 He needs to lose $98 - 85 = 13\text{ kg}$
 He needs $\frac{600}{200} = 3$ yoga classes per week
 He will lose $0.75 \div 3 = 0.25\text{ kg per class}$
 He needs $13 \div 0.25 = 52$ classes

Does he have enough money? (tick one box) Yes ☒ No ☐

Explanation

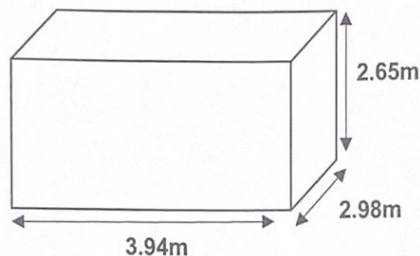
Yoga classes cost $52 \times £6 = £312 < £360$
 so he has enough money

(5 marks)

Q13

A house tenant has a budget of £75 to redecorate a room.

The room has two walls 2.98m long and 3.94m long and the wall is 2.65m high.



Sketch of room

Not to scale

She wants to paint one long wall and one short wall.

She wants to put wallpaper on the other short and long walls.

A 2.5L tin of paint costs £16 and covers 30m^2

A roll of wallpaper is 52cm wide and 10 m long.



Can the tenant decorate the room for the budget set?

Explain your answer using figures.

Can the tenant decorate the room for the budget set? (tick one box) Yes ☒ No ☐

Show your working

Paint: Total area = $(3.94 \times 2.65) + (2.98 \times 2.65)$
 $= 18.338\text{m}^2 < 30\text{m}^2$

so she needs 1 tin, which costs £16

Wallpaper: Total area = 18.338m^2

Explanation 1 roll = $0.52 \times 10 = 5.2\text{m}^2$

$18.338 \div 5.2 = 3.526 \dots$ rolls

so she needs 4 rolls, costing $£10 \times 4 = £40$

Total cost = $£16 + £40 = £56 < £75$

so the tenant can decorate the room for the budget.

(6 marks)

Q14

A vet nurse in a pet rescue centre records weights and ages of kittens brought to the centre.

Weights and ages of kittens brought to the centre			
weight (g)	age (days)	weight (g)	age (days)
600	50	660	50
340	28	720	56
480	42	420	28
360	20	180	14

One day the centre receives an abandoned kitten. It weighs 460g

The nurse needs to estimate the age of the kitten.

Draw a suitable graph and trend line.

Estimate the age of the abandoned kitten.

Show on the graph how you made the estimation.



$$36 \text{ days} = \frac{36}{7} = 5.14 \text{ weeks} \approx 5 \text{ weeks}$$

Estimated age of rescued kitten 5 weeks

(5 marks)

Q15

A city council wants to encourage car sharing to cut pollution.

It takes a survey of cars entering the city and find these results.

Average people in a car entering the city	
Mean	Mode
1.65	1

It introduces a congestion charge for cars with only one person in the car.

It wants to know if the congestion charge is effective in making people share cars.

It takes another survey of the number of people in cars entering the city.

Number of people in a car	Number of cars after the congestion charge is introduced (frequency)
1	17
2	54
3	14
4	8
5	2
6+	0

cars x people

$$\begin{array}{r}
 1 \times 17 = 17 \\
 2 \times 54 = 108 \\
 3 \times 14 = 42 \\
 4 \times 8 = 32 \\
 5 \times 2 = 10 \\
 0 = 0 \\
 \hline
 209
 \end{array}$$

95

Is the congestion charge effective?

Make two comments using the figures provided

Is the congestion charge effective? (tick one box) Yes ☒ No ☐

Show your working

$$\begin{array}{l}
 \text{mean} = \frac{209}{95} = 2.2 \\
 \text{mode} = 2
 \end{array}$$

Comment 1

congestion charge is effective because the mean has increased ($2.2 > 1.65$)

Comment 2

congestion charge is effective because the mode has increased ($2 > 1$)

(6 marks)