

Please check the examination details below before entering your candidate information

Candidate surname

Other names

**Pearson Edexcel  
Functional Skills**

Centre Number

Candidate Number

**\*\*\*Past Paper 10\*\*\***

Time: 25 minutes

Paper Reference **PMAT2/N10**

**Mathematics**

**Level 2**

**Section A (Non-Calculator)**



**You must have:**

Pen, HB pencil, eraser, ruler graduated in cm and mm, protractor, pair of compasses. Tracing paper may be used.

Total Marks

**My signature confirms that I will not discuss the content of the test with anyone.**

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.
- Write your final answers in the boxes provided.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- You **must** show clearly how you get your answers in the spaces provided. Marks will be awarded for your working out.
- Check your working and answers at each stage.
- Diagrams are **not** accurately drawn, unless otherwise indicated.
- **Calculators may not be used.**
- Take the value of  $\pi$  to be 3.14

### Information

- The total mark for this section is 16.
- The marks for **each** question are shown in brackets  
– *use this as a guide as to how much time to spend on each question.*
- This sign ☒ shows where marks will be awarded for showing your checks.

### Advice

- Read each question carefully before you start to answer it.
- Check your answers if you have time at the end.

Turn over ►

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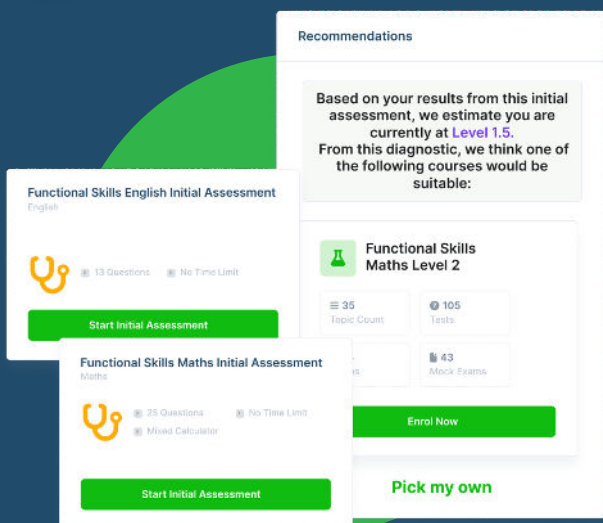


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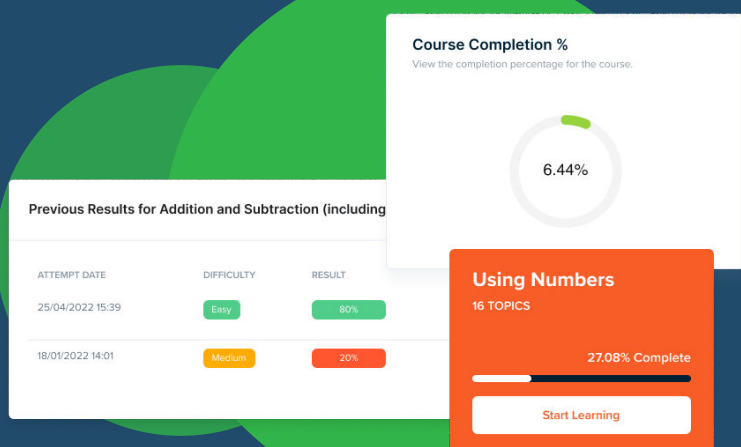
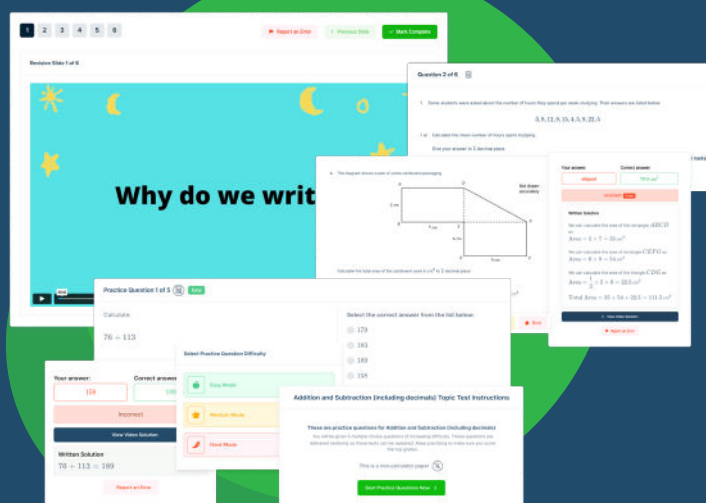


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## SECTION A

Answer ALL questions. Write your answers in the spaces provided.

1

- (a) Write 50 as a fraction of 125  
Give your answer in its simplest form.

(1)

$$\frac{50}{125} = \frac{10}{25} = \frac{2}{5}$$

2

5

- (b) Work out  $18.17 + 4.398$   
Remember to show your working.

(2)

$$\begin{array}{r} 18.17 \\ + 4.398 \\ \hline 22.568 \end{array}$$

22.568

(Total for Question 1 is 3 marks)

2

Work out  $5\frac{3}{4} - 2\frac{5}{8}$ 

Give your answer as a mixed number.  
You **must** show your working.

(3)

$$\begin{aligned} & 5\frac{3}{4} - 2\frac{5}{8} \\ &= \frac{23}{4} - \frac{21}{8} \\ &= \frac{46}{8} - \frac{21}{8} \\ &= \frac{25}{8} \\ &= 3\frac{1}{8} \end{aligned}$$

$$3\frac{1}{8}$$

(Total for Question 2 is 3 marks)

- 3 Hana wants to buy a new washing machine.  
She will use one of these offers.

**Offer A**

24 monthly payments of £30

**Offer B**

normal price £954  
now 22% off

Hana wants to spend the least amount of money.

Which offer should Hana use?  
Show why you think this.

(4)

Offer A

$$24 \times £30 = \underline{\underline{£720}}$$

$$\begin{array}{r} 24 \\ \times 30 \\ \hline + 00 \\ 720 \\ \hline 720 \end{array}$$

offer B

$$\begin{array}{l} 10\% \text{ of } £954 = £95.40 \\ 20\% \text{ of } £954 = £190.80 \end{array} \quad \times 2$$

$$\begin{array}{l} 1\% \text{ of } £954 = £9.54 \\ 2\% \text{ of } £954 = £19.08 \end{array} \quad \times 2$$

$$\begin{aligned} 22\% \text{ of } £954 &= £190.80 + £19.08 \\ &= £209.88 \end{aligned}$$

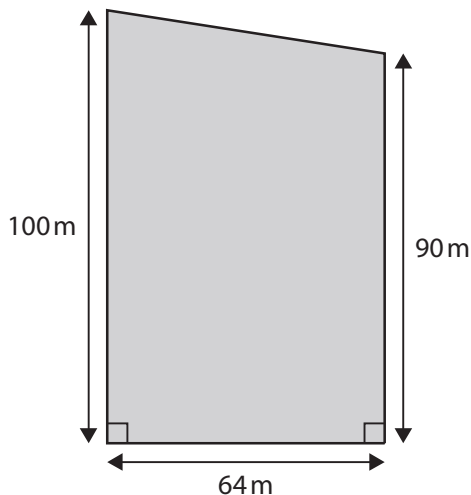
$$\begin{aligned} \text{Offer price} &= £954 - £209.88 \\ &= \underline{\underline{£744.12}} \end{aligned}$$

$$\begin{array}{r} 954.00 \\ - 209.88 \\ \hline 744.12 \end{array}$$

Offer A is cheaper

(Total for Question 3 is 4 marks)

- 4 Jack is managing a concert.  
The diagram shows the total floor space for the concert.



Jack receives £21 for each square metre of floor space from ticket sales.

He donates  $\frac{1}{7}$  of the total he receives from ticket sales to a charity.

How much money does Jack donate to the charity?

You **must** show your working.

(6)

$$\begin{aligned} \text{Area} &= \frac{100 + 90}{2} \times 64 \\ &= \frac{190}{2} \times 64 \\ &= 95 \times 64 \\ &= 6080 \text{ m}^2 \end{aligned}$$

$$\begin{array}{r} 95 \\ \times 64 \\ \hline 380 \\ + 5700 \\ \hline 6080 \end{array}$$

$$\begin{aligned} \text{He makes } &£21 \times 6080 \\ &= £127,680 \end{aligned}$$

$$\begin{array}{r} 6080 \\ \times 21 \\ \hline 6080 \\ + 121600 \\ \hline 127680 \end{array}$$

$$\begin{aligned} \text{He donates } &£127,680 \div 7 \\ &= £18,240 \end{aligned}$$

$$\begin{array}{r} 18240 \\ 7 \overline{) 127680} \\ \underline{7} \phantom{00} \\ 57 \phantom{00} \\ \underline{56} \phantom{00} \\ 10 \phantom{00} \\ \underline{7} \phantom{00} \\ 28 \phantom{00} \\ \underline{28} \phantom{00} \\ 0 \end{array}$$

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£18,240

(Total for Question 4 is 6 marks)

TOTAL FOR SECTION A IS 16 MARKS

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Other names

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Functional Skills**

Centre Number

Candidate Number

**\*\*\*Past Paper 10\*\*\***

Time: 1 hour 30 minutes

Paper Reference **PMAT2/C10**

**Mathematics**

**Level 2**

**Section B (Calculator)**



**You must have:**

Pen, calculator, HB pencil, eraser, ruler graduated in cm and mm, protractor, pair of compasses. Tracing paper may be used.

Total Marks

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- If your calculator does not have a  $\pi$  button take the value of  $\pi$  to be 3.14

**Information**

- The total mark for this section is 48.
- The total mark for this paper is 64.
- The marks for **each** question are shown in brackets  
– *use this as a guide as to how much time to spend on each question.*
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**Advice**

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Turn over ►

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## SECTION B

Answer ALL questions. Write your answers in the spaces provided.

- 1 Marta and Aki want to move into a two-bedroom flat.  
Marta will have the bigger bedroom.

The total monthly rent for the flat is £720

Marta and Aki will share the cost of the rent in the ratio 9 : 7

Marta thinks she will pay less than £400 a month in rent.

Is Marta correct?  
Show why you think this.

(3)

$$9 + 7 = 16 \text{ parts}$$

$$16 \text{ parts} = \pounds 720$$

$$1 \text{ part} = \pounds 45$$

$$\begin{array}{l} \swarrow \times 7 \\ 7 \text{ parts} \\ \pounds 315 \end{array}$$

$$\begin{array}{l} \swarrow \times 9 \\ 9 \text{ parts} \\ \pounds 405 \end{array}$$

↑  
Marta will pay  
£405 a month  
so she is wrong

No

(Total for Question 1 is 3 marks)

2 Ben is the manager of a mobile phone shop.

He starts to record the sales of mobile phones to 50 customers.

		Model		
		Mini	Regular	Maxi
Storage	64 GB	5	2	4
	128 GB	7	9	6
	256 GB	6	8	3

(a) Complete the table for Ben.

(1)

Total number of customers so far is:

$$5 + 2 + 4 + 7 + 9 + 6 + 6 + 8 = 47$$

So 3 more to make 50 customers

Ben selects at random one of the customers who bought a mini mobile phone.

(b) What is the probability that this customer bought a 128GB mobile phone?

(2)

$5 + 6 + 7 = 18$  customers bought mini

of these, 7 bought 128 GB

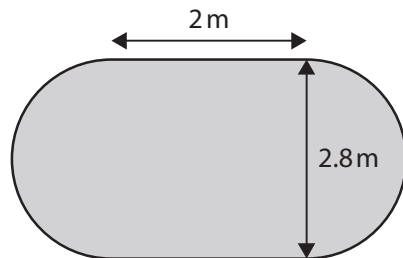
so  $\frac{7}{18}$

$$\frac{7}{18}$$

(Total for Question 2 is 3 marks)

3 Emma hires a large tent for a party.

The diagram shows the shape of the ceiling of the tent.  
The ceiling is made up of a rectangle and two semi-circles.



Emma wants to put a flower garland around the edge of the ceiling.

She has 40 feet in length of flower garland.

Use 1 metre = 3.3 feet

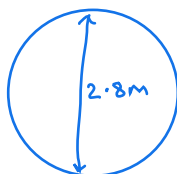
Does Emma have enough flower garland to go around the edge of the ceiling?

(4)

Straight edges =  $2 + 2 = 4\text{ m}$

curved edges form circle

circumference =  $3.14 \times 2.8$   
=  $8.792\text{ m}$



Total perimeter =  $4 + 8.792$   
=  $12.792\text{ m}$

$1\text{ m} = 3.3\text{ feet}$   
 $12.792\text{ m} = 42.2136\text{ feet}$

↑  
She only has  
40 feet so not enough

No

(Total for Question 3 is 4 marks)

- 4 Jake and Tia are preparing to take part in a 10 km race.

They both run 10 km each week for 6 weeks.

Jake records his times.

Week	1	2	3	4	5	6
Time (minutes)	65	59	62	56	58	66

Tia says,

"my median time is 61 minutes."

- (a) Is Jake's median time greater than Tia's median time?

(2)

56 58 59 62 65 66



$$\text{median} = \frac{59 + 62}{2}$$

$$= 60.5 \text{ No, not greater than Tia's}$$

No



- (b) Show a check of your answer.

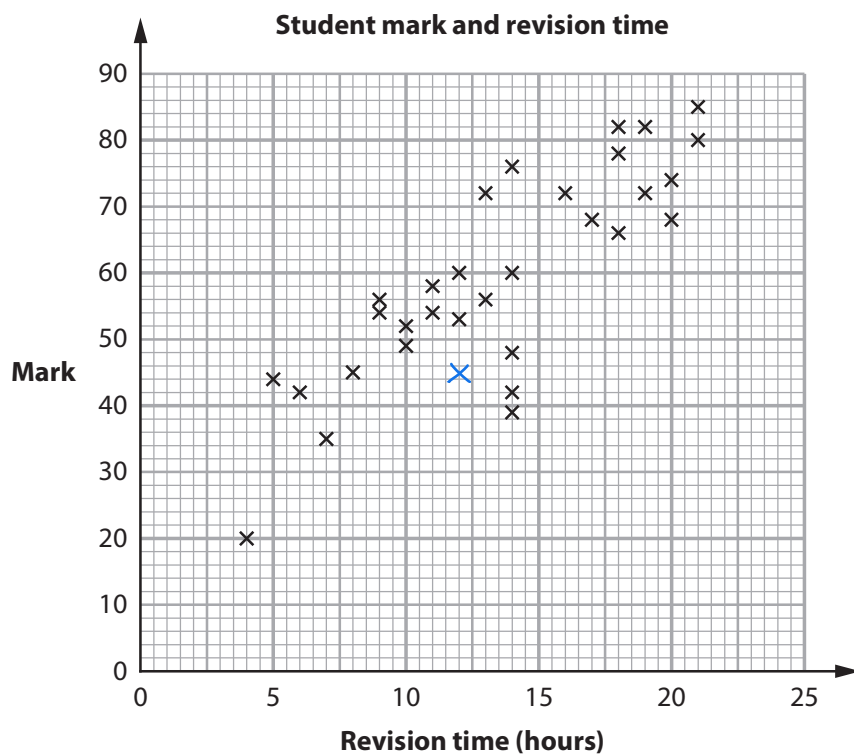
(1)

$$\begin{aligned} 60.5 \times 2 &= 121 \\ &= 59 + 62 \end{aligned}$$

(Total for Question 4 is 3 marks)

- 5 Ms Daly gives her students one week to prepare for a maths test.

The scatter diagram shows the number of hours spent on revision and the mark in the test for each of 31 students.



Another student revised for 12 hours and scored 45 marks on the test.

- (a) Plot this point on the scatter diagram.

(1)

- (b) What type of correlation does the scatter diagram show?

(1)

positive correlation

Ms Daly uses the scatter diagram to recommend how much revision time students need to get a high mark on the test.

- (c) What percentage of the students who revised for more than 15 hours scored over 70 marks in the test?

(3)

1) Students revised for over 15 hours

8 of these scored over 70

$$\frac{8}{11} \times 100 = 72.727\ldots\%$$

72.7%

(Total for Question 5 is 5 marks)

- 6 Alya is a baker.  
In April she will use 400 kg of flour to make bread.

In May she plans to increase the amount of bread she makes by 14%  
Alya needs to order the flour she needs to make the bread in May.

How much flour does Alya need to order to make the bread in May?

(3)

$$\begin{aligned}\text{Increase by } 14\% \text{ is } & 100\% + 14\% \\ & = 114\% \\ & = 1.14\end{aligned}$$

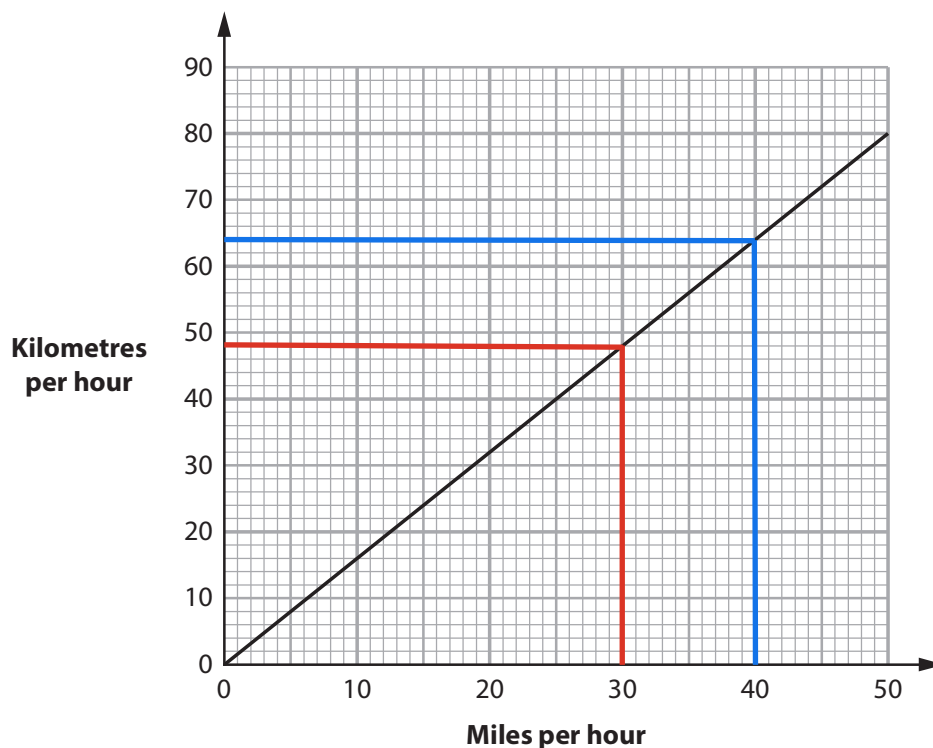
So multiply by 1.14

$$400 \times 1.14 = 456 \text{ kg}$$

456 kg

(Total for Question 6 is 3 marks)

- 7 This graph can be used to convert between miles per hour and kilometres per hour.



- (a) Use the graph to complete the table.

(2)

Miles per hour	Kilometres per hour
30	48
40	64

Karim buys a new car.  
The fuel tank of the car has a capacity of 62 litres.

He knows 1 gallon = 4.546 litres

- (b) What is the capacity of this fuel tank in gallons?  
Give your answer correct to 2 decimal places.

(2)

$$62 \div 4.546 = 13.63836...$$

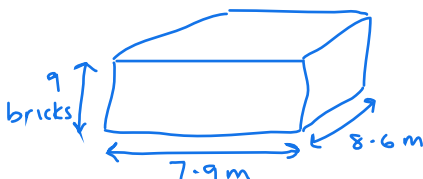
13.64 gallons

(Total for Question 7 is 4 marks)

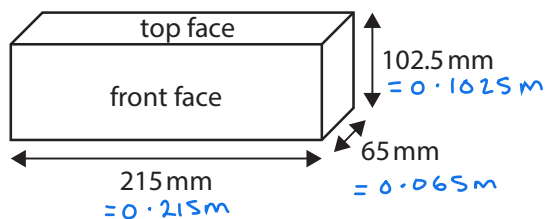
- 8 Amir is a builder.  
He needs to work out how much it will cost him to build a wall.

Amir uses this information to work out the number of bricks he needs.  
The wall will be

- 7.9 m in length
- 9 bricks in height
- 8.6 m in width.



The bricks Amir will use are in the shape of a cuboid.



Amir has these prices for bricks.

Price per brick			
<u>£1.50</u>	£1.75	£1.68	£1.99
£1.65	£1.80	£1.49	<u>£1.50</u>

He uses the mode of these prices to work out the total cost of the bricks he needs for the wall.

Amir will also pay £75 for the other materials he needs to build the wall.

Work out the total cost of the bricks and other materials for Amir.

(6)

mode = £1.50 per brick

length:  $7.9 \div 0.215 = 36.744\dots$  so 37 bricks long

width:  $8.6 \div 0.065 = 132.307\dots$  so 133 bricks wide

height: 9 bricks tall

so he needs  $37 \times 133 \times 9 = 44,289$  bricks

bricks will cost  $\pounds 1.50 \times 44,289 = \pounds 66,433.50$

Total cost is  $\pounds 66,433.50 + \pounds 75$   
 $= \pounds 66,508.50$

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£66,508 - 50

(Total for Question 8 is 6 marks)

- 9 Craig works on a building site.  
He knows it takes 2 bricklayers 3 hours to lay a total of 450 bricks.

On Monday there are 5 bricklayers at the building site.  
All the bricklayers work at the same rate.

How much time would it take 5 bricklayers to lay a total of 450 bricks?  
Give your answer in hours.

(3)

$$\begin{array}{l} \div 2 \left( \begin{array}{l} 2 \text{ bricklayers} \rightarrow 3 \text{ hours} \\ 1 \text{ bricklayer} \rightarrow 6 \text{ hours} \end{array} \right) \times 2 \\ \times 5 \left( \begin{array}{l} 5 \text{ bricklayers} \rightarrow 1.2 \text{ hours} \end{array} \right) \div 5 \end{array}$$

1.2 hours

(Total for Question 9 is 3 marks)

10

(a) Work out the value of  $\left(\frac{13.608}{3.24}\right)^2$

(2)

$$\begin{aligned} &= 4.2^2 \\ &= 4.2 \times 4.2 \\ &= 17.64 \end{aligned}$$

17.64

(b) Write  $\frac{3}{8}$  as a decimal.

(1)

$$3 \div 8 = 0.375$$

0.375

(Total for Question 10 is 3 marks)

- 11 Ben is the manager of a leisure centre.  
He has this formula to work out the volume of the water in the pool.

$$V = 10dw + 15aw$$

where

$V$  = the volume of the water in the pool ( $\text{m}^3$ )

$d$  = the depth of the water at the deep end of the pool (m) = 2 m

$w$  = width of the pool (m) = 12 m

$a$  = the depth of the water at the shallow end of the pool (m) = 1.5 m

Ben knows the width of the pool is 12 m.

The depth of the water at the deep end is 2 m.

The depth of the water at the shallow end is 1.5 m.

Ben uses two water pumps at the same time to empty the pool.

Pump A empties water at a rate of  $31.2 \text{ m}^3$  per hour.

Pump B empties water at a rate of  $27 \text{ m}^3$  per hour.

Ben thinks that using the two water pumps will empty the pool in less than 9 hours.

Is he correct?

Show why you think this.

$$\begin{aligned}\text{Volume} &= 10 \times 2 \times 12 + 15 \times 1.5 \times 12 \\ &= 240 + 270 \\ &= 510 \text{ m}^3\end{aligned}$$

(5)

Together, pumps empty  $31.2 + 27 = 58.2 \text{ m}^3$  water per hour

In 9 hours, will pump  $58.2 \times 9 = 523.8 \text{ m}^3$  water

Only  $510 \text{ m}^3$  in the pool, so yes, will take less than 9 hours

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Yes

(Total for Question 11 is 5 marks)

- 12 Ricardo gets a new job at a leisure centre.  
He records the number of visits of 50 clients in August.

Number of visits	Frequency	midpoint	midpoint $\times$ freq
1 to 7	8	4	$4 \times 8 = 32$
8 to 14	24	11	$11 \times 24 = 264$
15 to 21	12	18	$18 \times 12 = 216$
22 to 28	6	25	$25 \times 6 = 150$
<b>Total</b>	<b>50</b>		total 662

Ricardo works out an estimate for the mean number of visits by these clients in August.

His manager tells him this is a 16% increase on the mean number of client visits in July.

- (a) What was the mean number of client visits in July?

(5)

$$\begin{aligned} \text{mean in August} &= 662 \div 50 \\ &= 13.24 \end{aligned}$$

$$\begin{aligned} 16\% \text{ increase is } 100\% + 16\% \\ &= 116\% \\ &= 1.16 \end{aligned}$$

$$\text{So mean in July is } 13.24 \div 1.16 = 11.41\dots$$

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11.41



(b) Use a reverse calculation to show a check of your estimated mean.

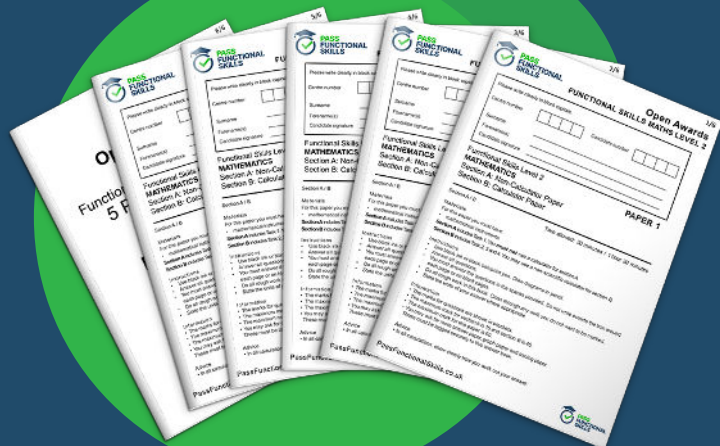
(1)

$$13.24 \times 50 = 62$$

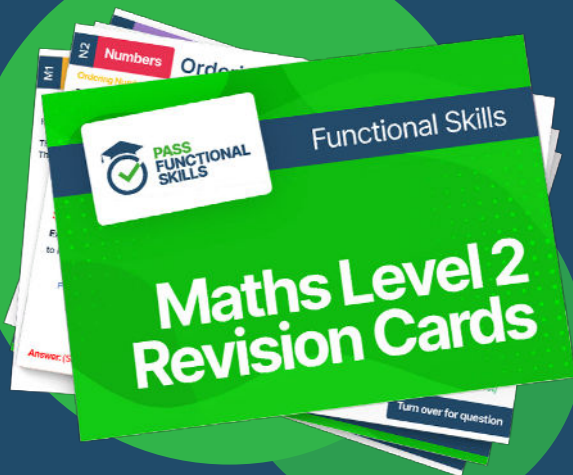
(Total for Question 12 is 6 marks)

TOTAL FOR SECTION B IS 48 MARKS

TOTAL FOR PAPER IS 64 MARKS



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