

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 5

Time: 25 minutes

Paper Reference **PMAT2/N05**

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 π 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.

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SECTION A

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

1 Gareth sells hot drinks.
He sells cups of tea, cups of coffee and cups of hot chocolate.

Of all the hot drinks he sold last week

- $\frac{2}{5}$ were cups of tea
- $\frac{1}{3}$ were cups of coffee.

What fraction of all cups of hot drinks sold were cups of hot chocolate?

$$\frac{2}{5} + \frac{1}{3} = \frac{6}{15} + \frac{5}{15} \\ = \frac{11}{15}$$

$$\text{hot chocolate} = 1 - \frac{11}{15} \\ = \frac{15}{15} - \frac{11}{15} \\ = \frac{4}{15}$$

$$\frac{4}{15}$$

(Total for Question 1 is 3 marks)



2

(a) Work out 13.4×5.2

(2)

$$\begin{array}{r} 134 \\ \times 52 \\ \hline 268 \\ 6700 \\ \hline 6968 \end{array}$$

need two digits after decimal point so 69.68

69.68



(b) Use estimation to show a check of your working.

(1)

$$13 \times 5 = 65$$

(Total for Question 2 is 3 marks)



3 Mitch works in a fitness centre.

He gives one raffle ticket to each of 1000 people that attend the fitness centre.

Mitch starts to complete this two-way table to show information about the people he gives the raffle tickets to.

		favourite class			
		spin	yoga	cardio	total
age (years)	18 to 24	85	92	145	322
	25 to 49	107	119	134	360
	50 and over	38	170	110	318
	total	230	381	389	1000

(a) Complete the two-way table for Mitch.

(2)

Mitch selects a raffle ticket at random.

(b) What is the probability that the ticket he selects belongs to a person aged under 50 whose favourite class is cardio?

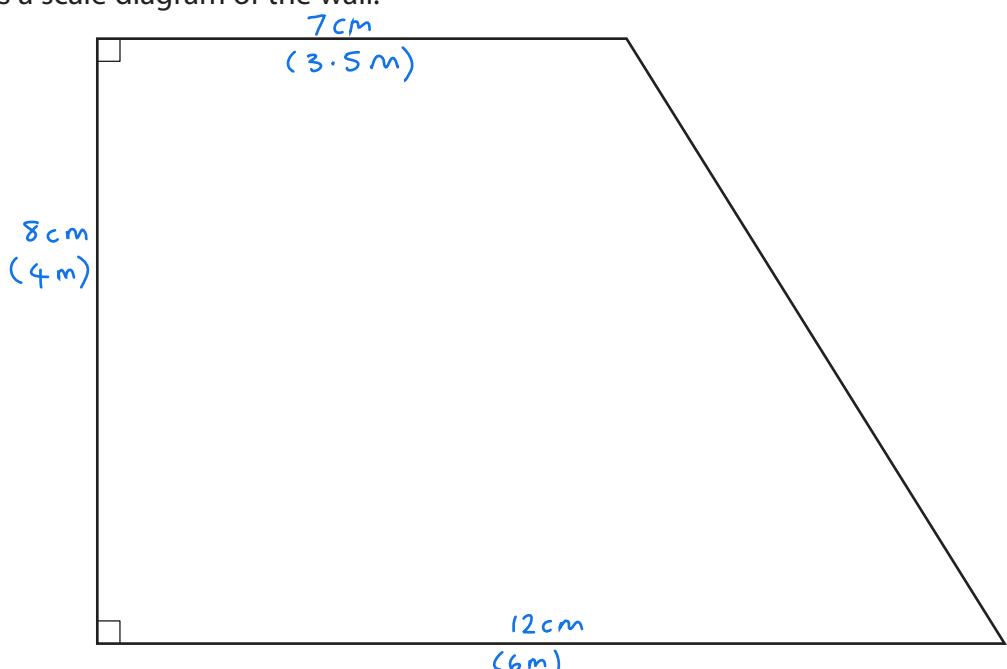
$$\frac{145 + 134}{1000} = \frac{279}{1000}$$

(2)

(Total for Question 3 is 4 marks)



4 Dave is going to paint a wall.
Here is a scale diagram of the wall.



Dave will paint this wall twice.
He thinks the total area that he needs to paint is greater than 30 m^2

Is Dave correct?
You **must** show all your working.

(6)

$$\begin{aligned}
 & \xrightarrow{\times 0.5} \\
 1\text{cm} & \rightarrow 0.5\text{m} \\
 7\text{cm} & \rightarrow 3.5\text{m} \\
 8\text{cm} & \rightarrow 4\text{m} \\
 12\text{cm} & \rightarrow 6\text{m}
 \end{aligned}
 \quad \text{area} = \frac{3.5 + 6}{2} \times 4 \\
 & = 19\text{ m}^2 \text{ (in real life)}$$

paints wall twice, so $2 \times 19 = 38\text{ m}^2$ to paint



yes, area to paint is
greater than 30 m^2 so Dave
is correct

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(Total for Question 4 is 6 marks)

TOTAL FOR SECTION A IS 16 MARKS

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Pearson Edexcel Functional Skills

Past Paper 5

Time: 1 hour 30 minutes

Paper Reference **PMAT2/C05**

Mathematics

Level 2

Section B (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

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- Check your working and answers at each stage.
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- **Calculators may be used.**
- If your calculator does not have a π button take the value of π 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*.
- 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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SECTION B

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

1 Here is a set of data.

15 10 16 8 14 0 13 8 15 8

(a) Find the median.

(2)

0 8 8 8 10 13 14 15 15 16
↑

$$\text{median} = \frac{10+13}{2}$$

$$= \frac{23}{2}$$

$$= 11.5$$

11.5

(b) Find the mode.

(1)

most common = 8

8

(Total for Question 1 is 3 marks)



2 Last year Jim bought 15 prizes for work.
The prizes cost £27 each.

This year Jim will buy 18 prizes.
He will spend the same total amount of money as he spent last year on the prizes.

Each of the 18 prizes must cost the same amount of money.

Work out the cost of each prize this year.

$$\begin{aligned} \text{total amount} &= 15 \times 27 & (3) \\ &= \text{£405 to spend} \end{aligned}$$

$$\begin{aligned} \text{each prize} &= 405 \div 18 \\ &= \text{£22.50} \end{aligned}$$

£22.50

(Total for Question 2 is 3 marks)



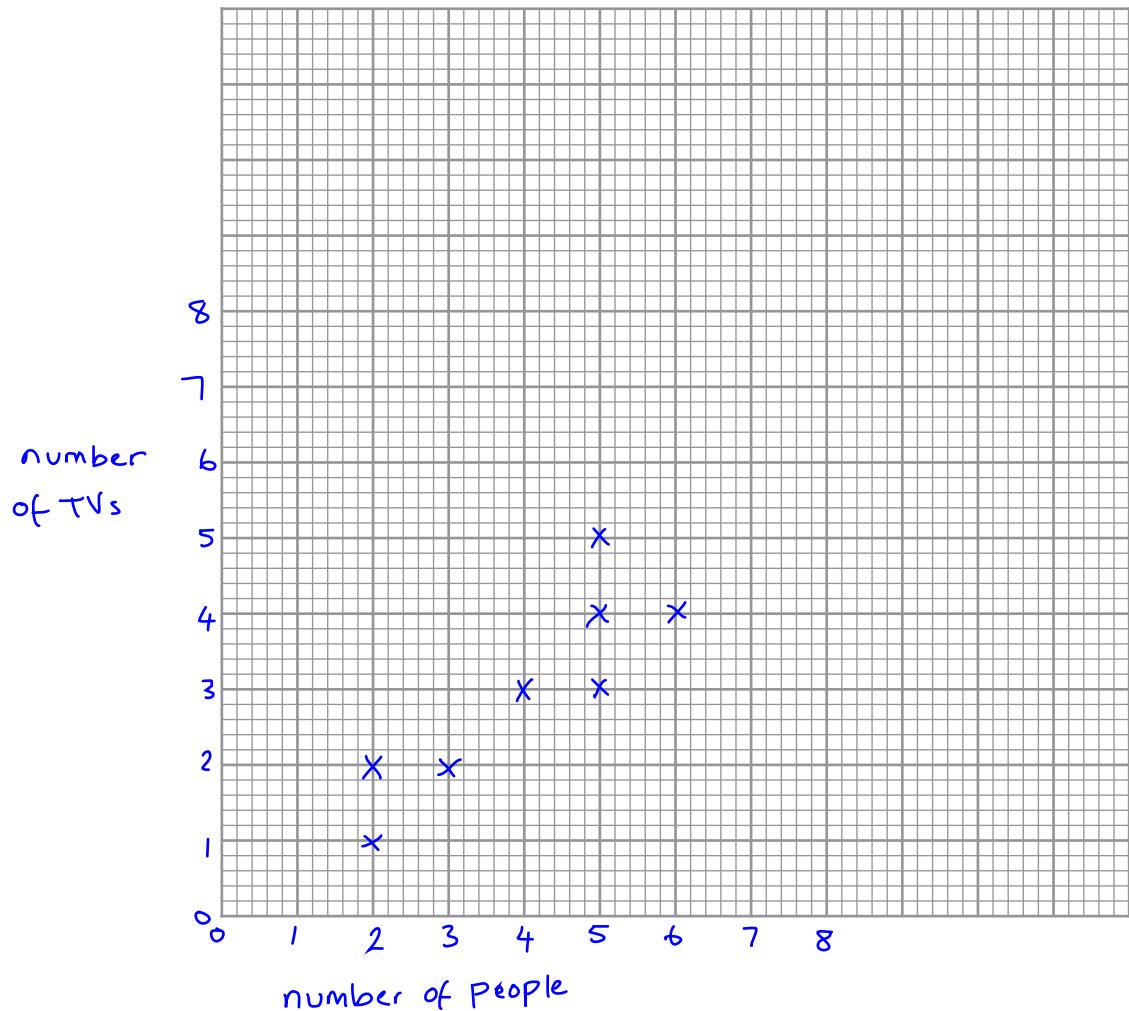
3 Steve is writing a report about TV viewing.
He has the following information.

Number of people in the household	3	5	5	6	5	2	4	2
Number of TVs in the household	2	3	4	4	5	1	3	2

Steve thinks there is a relationship between the number of people and the number of TVs in a household.

(a) Draw a suitable diagram for Steve.

(3)



(b) Describe the relationship between the number of people and the number of TVs in a household.

(1)

positive correlation

(Total for Question 3 is 4 marks)



4 Karen invests £2 500 for 3 years.

The investment earns 1.7% compound interest per year.

$$\begin{aligned}100\% + 1.7\% \\= 101.7\% \\= 1.017\end{aligned}$$

Work out the value of the investment at the end of 3 years.

(3)

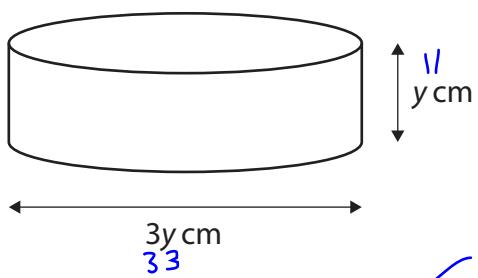
$$\begin{aligned}2500 \times 1.017 \times 1.017 \times 1.017 \\= £2629.68\end{aligned}$$

£ 2629.68

(Total for Question 4 is 3 marks)



5 Here is a cylinder.



(a) Using $y = 11$ calculate the area of the curved surface of the cylinder.

(4)

curved area:

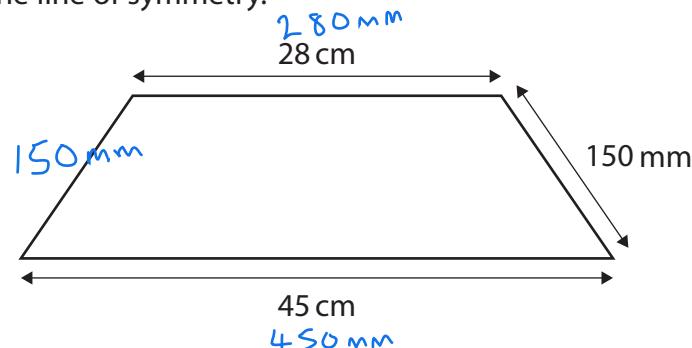


$$\begin{aligned} \text{area} &= \pi \times 33 \times 11 \\ &= 1140 \cdot 40 \text{ cm}^2 \end{aligned}$$

$$1140 \cdot 40 \text{ cm}^2$$



Here is a trapezium.
The trapezium has one line of symmetry.



(b) Choose the correct calculation to work out the perimeter of the trapezium.

(1)

- 28×150
- $28 + 150 + 45 + 150$
- 45×0.15
- $280 + 150 + 450 + 150$
- 280×150

(Total for Question 5 is 5 marks)



6

(a) Write 45% as a fraction in its simplest form.

(1)

$$\frac{45}{100} = \frac{9}{20}$$

\curvearrowleft
 $\div 5$

9
20

(b) Calculate $\frac{5 + 13^2}{11 - 9.5}$

BIDMAS

(2)

$$= \frac{5 + 169}{11 - 9.5}$$

$$= \frac{174}{1.5}$$

$$= 116$$

116

(Total for Question 6 is 3 marks)



7 Kate is making biscuits.
She uses flour, butter and sugar in the ratio 5:3:2

Kate has

- 800 g flour
- 550 g butter.

Kate wants to make the maximum number of biscuits possible. She works out how much sugar she needs.

(a) How much sugar does Kate need?
You **must** show your working.

(3)

£ 1 6 ; 5

5 : 3 : 2

$$800\text{g} : 550\text{g} : ?$$

$$\begin{array}{l}
 \text{5 parts} = 800 \text{g} \\
 \text{1 part} = 160 \text{g} \\
 \text{2 parts} = 320 \text{g}
 \end{array}$$

sugar = 320g

320 g

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

$$320 \div 2 = 160 \quad \text{so one part would be } 160 \text{ g}$$

(1)

(Total for Question 7 is 4 marks)



8 Lou wants to go to a gym.

She sees these two offers at the gym.

Offer A

Gym membership

£44 per month + £30 joining fee

All classes included

Offer B

Pay as you go

£7.75 per class

No joining fee

Lou wants to attend 2 classes each week for one year.

Lou thinks if she uses offer A she will save at least 28% on the total cost of classes compared to using offer B.

Is she correct?

Show why you think this.

(6)

$$\begin{array}{l} \text{Offer A} \\ \text{needs a year (12 months) so costs } 12 \times 44 + 30 = \text{£558} \end{array}$$

$$\begin{array}{l} \text{Offer B} \\ \text{needs a year (52 weeks) so costs } 2 \times 52 \times 7.75 = \text{£806} \end{array}$$

$$\begin{aligned} \% \text{ difference} &= \frac{806 - 558}{806} \times 100 \\ &= 30.769\ldots\% \end{aligned}$$

↑
Yes, more than 28%.



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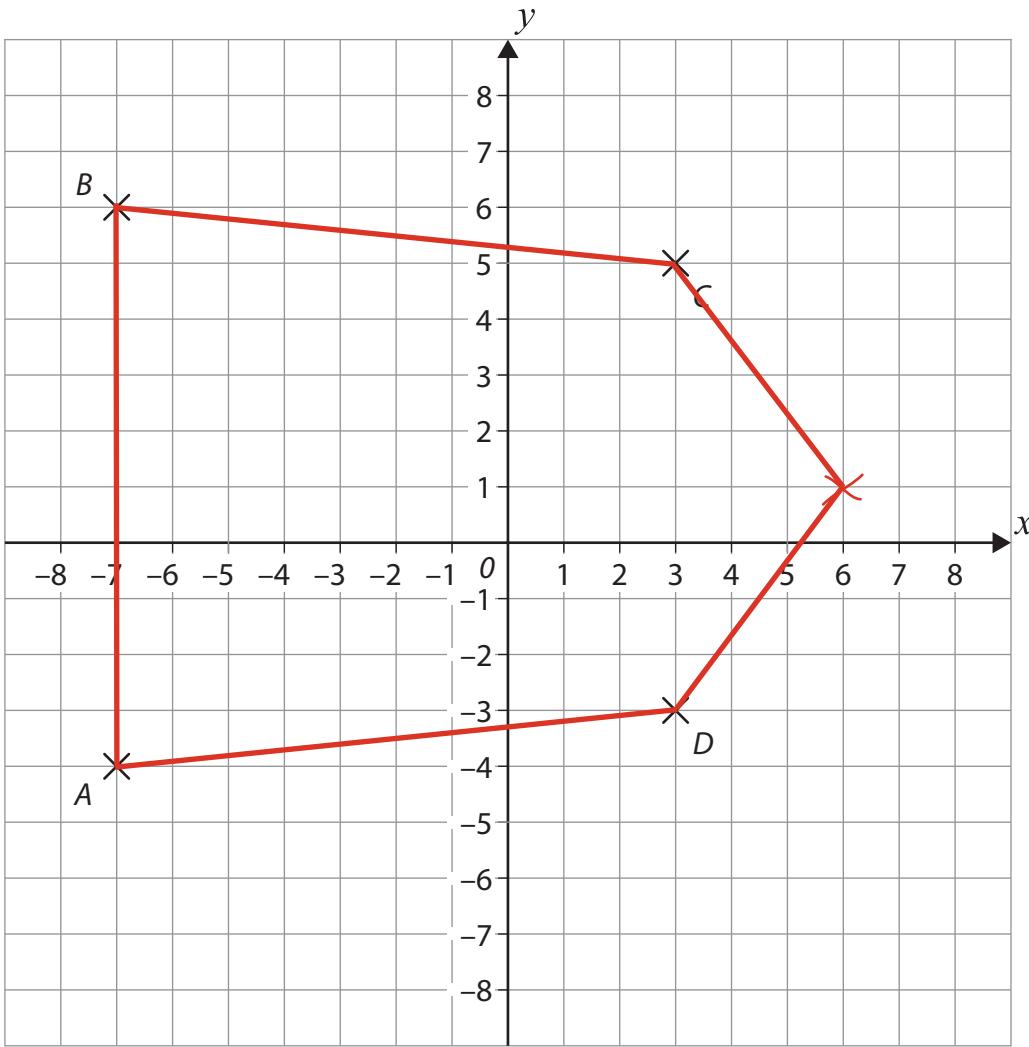
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P 6 7 3 6 9 A 0 1 1 2 0

(Total for Question 8 is 6 marks)

9 Here is a grid with points A , B , C and D plotted.



(a) Write down the coordinates of point A .

(1)

(-7 , -4)

(b) On the grid, mark with a cross another point and join all five points to form a pentagon with one line of symmetry.

(2)

(Total for Question 9 is 3 marks)

10 Rav provides food for events.

Last year 550 people attended an event.

This year there will be 748 people attending the event.

Calculate the percentage increase in the number of people attending.

(3)

$$\frac{748 - 550}{550} \times 100$$

$$= \frac{198}{550} \times 100$$

$$= 36\%$$

36 %

(Total for Question 10 is 3 marks)



11 Meg has a dog.

She has this information about dog food.

Dog size	Daily quantity of dog food in packs
Small (up to 12 kg)	$\frac{1}{4}$ to $1\frac{1}{3}$
Medium (13 kg to 25 kg)	$1\frac{1}{3}$ to $2\frac{1}{3}$
Large (26 kg to 45 kg)	$2\frac{1}{3}$ to $3\frac{3}{4}$
Giant (46 kg to 70 kg)	$3\frac{3}{4}$ to 5

Meg knows that her dog weighs 29 lbs.

$$1 \text{ kg} = 2.2 \text{ lbs}$$

Meg has 24 packs of dog food.

(a) What is the maximum number of days she can feed her dog with the 24 packs?
Show why you think this.

dog weighs $29 \div 2.2 = 13.18 \text{ kg}$ so medium category (3)

$$\begin{aligned} \text{needs } 1\frac{1}{3} \text{ packs daily so will last } 24 \div 1\frac{1}{3} \text{ days} \\ = 24 \div \frac{4}{3} \\ = 18 \text{ days} \end{aligned}$$

18 days



Meg needs to replace part of her garden fence to keep her dog safe.
She needs to replace 78 feet of fencing.

Meg buys fencing measured in metres.

Meg uses 1 metre is 3.28 feet.

(b) Work out how many metres of fencing Meg needs.

$$78 \div 3.28 = 23.78 \text{ metres}$$

(2)

23.78 metres

(Total for Question 11 is 5 marks)



12 Ria works in a factory making solid steel spheres.

She has this information about the number of spheres made each day for the last 100 days.

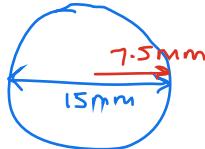
Number of spheres	Number of days
210 to 212	4
213 to 215	32
216 to 218	53
219 to 221	11

Ria will use this information to estimate the mean number of spheres made each day.

She knows that the volume, v , of a sphere is

$$v = \frac{4\pi r^3}{3}$$

r is the radius of the sphere



Each sphere has a diameter of 15 mm.

Calculate the mean volume of steel used each day to make spheres.
Give your answer to the nearest thousand.

(6)

Number of spheres	Number of days	midpoint	midpoint \times freq
210 to 212	4	211	$4 \times 211 = 844$
213 to 215	32	214	$32 \times 214 = 6848$
216 to 218	53	217	$53 \times 217 = 11501$
219 to 221	11	220	$11 \times 220 = 2420$
total	100		21613

$$\text{Mean} = 21613 \div 100$$

$$= 216.13 \text{ spheres each day}$$



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$$\begin{aligned}\text{Volume of each sphere} &= \frac{4 \times \pi \times 7.5^3}{3} \\ &= \frac{5298.75}{3} \\ &= 1766.25\end{aligned}$$

$$\begin{aligned}\text{Total volume of steel} &= 1766.25 \times 216.13 \\ &= 381,739.6125 \text{ mm}^3 \\ &382,000 \text{ mm}^3 \text{ (nearest thousand)}\end{aligned}$$

382,000 mm³

(Total for Question 12 is 6 marks)

TOTAL FOR SECTION B IS 48 MARKS
TOTAL FOR PAPER IS 64 MARKS



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