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Candidate surname	Other names
Pearson Edexcel Functional Skills	Centre Number <input style="width: 100%;" type="text"/>
Practice Set 2	Candidate Number <input style="width: 100%;" type="text"/>
Time: 1 hour 30 minutes	Paper Reference PRACL2/C02
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 <input style="width: 100%; height: 40px;" type="text"/>

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 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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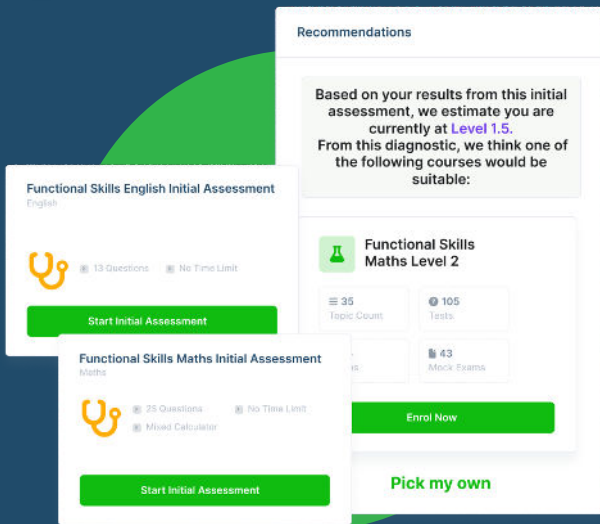
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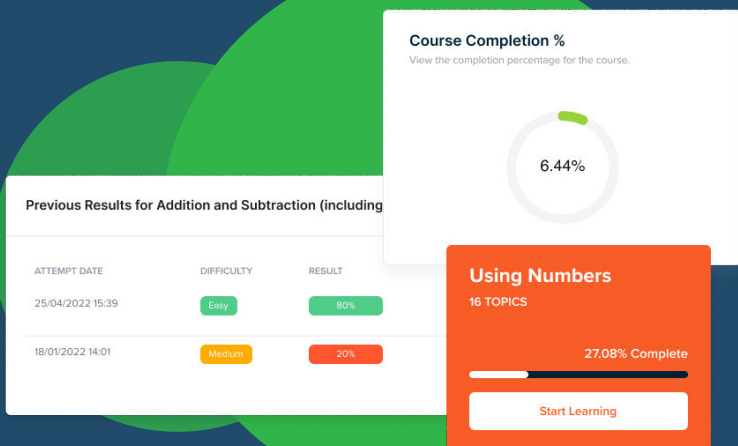
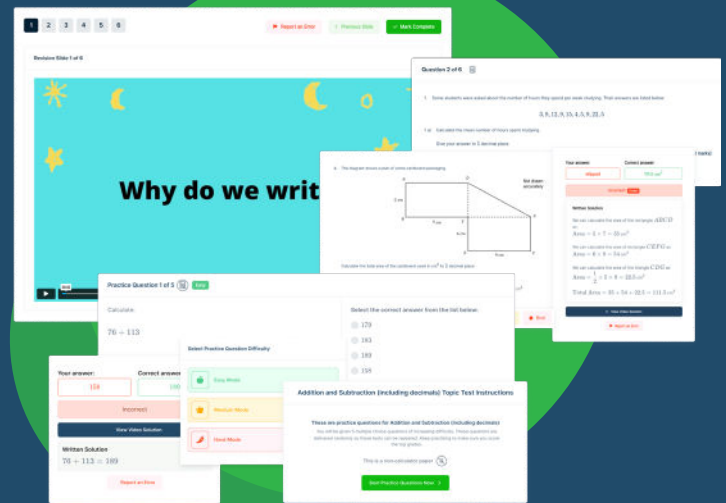


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SECTION B

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

- 1 Luke plays a computer game where he manages a city.
He buys two buildings.

Luke receives

- 135 coins every 8 hours from building A
- 36 coins every 15 minutes from building B.

Luke thinks he receives a total of 4000 coins in 24 hours from these buildings.

Is Luke correct?

Show why you think this.

(3)

$$\bullet 24 \div 8 = 3$$

Luke receives 135 coins 3 times in 24 hours:

$$135 \times 3 = 405 \text{ coins for building A.}$$

- 15 minutes means ~~he~~ gets 36 coins 4 times each hour ($60 \div 15 = 4$).

So gets $4 \times 24 \times 36 = 3456$ coins from building B.

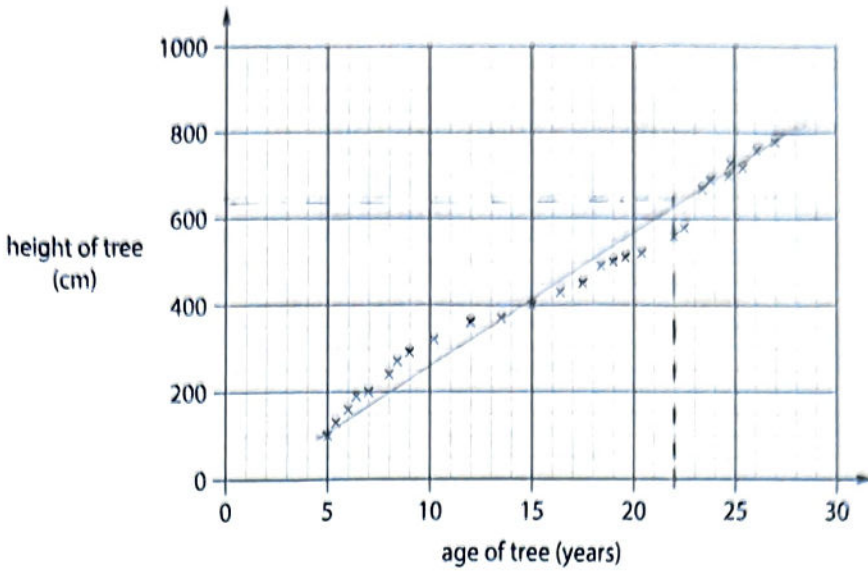
$$\text{Total: } 405 + 3456 = \underline{3861}$$

No Luke is wrong.

(Total for Question 1 is 3 marks)



2 The scatter diagram shows information about the age and height of some trees.



(a) Describe the relationship shown in the diagram.

(1)

Positive correlation - as age increases the height of the tree increases.

(b) Draw a line of best fit on the diagram.

(1)

(c) Estimate the age of a tree with a height of 625 cm.

(1)

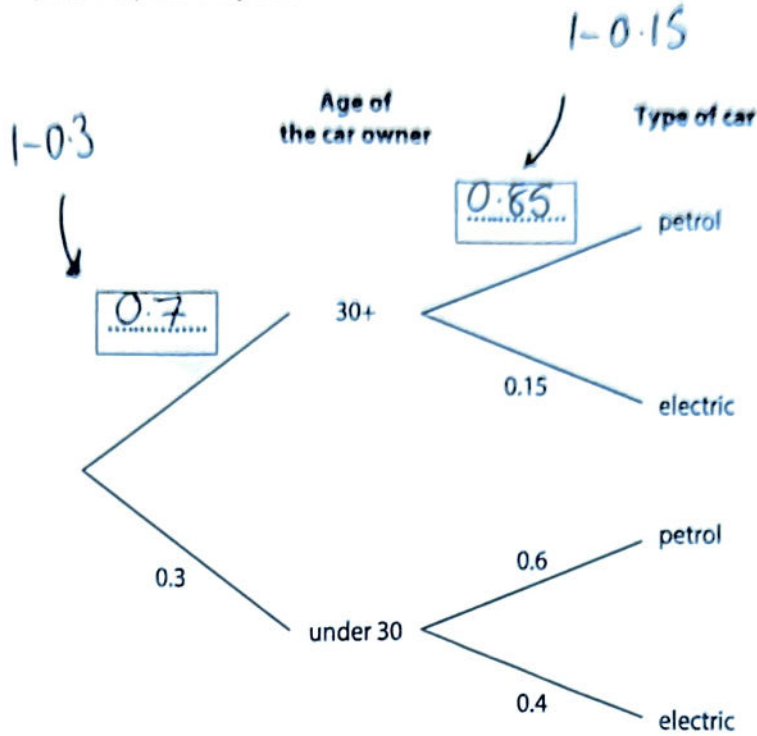
years

(Total for Question 2 is 3 marks)



3 The tree diagram shows the probability of selecting a car owner by their age and the type of car they have.

(a) Complete the probability tree.



A person is chosen at random.

(b) Work out the probability that this person is under 30 and has an electric car.

$$P(\text{Under 30 and electric car}) = 0.3 \times 0.4 = 0.12^{(2)}$$

$$= P(\text{under 30}) \times P(\text{electric})$$

0.12

(Total for Question 3 is 4 marks)

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- 4 Sasha is the manager at a factory.
Last weekend 15 employees assembled 390 identical wardrobes.
Sasha wants 1200 of these wardrobes to be assembled next weekend.

How many employees does Sasha need next weekend?
You **must** show your working.

(3)

$$\left(\frac{1200}{390}\right) \times \left(15 \text{ employees} \leftrightarrow 390 \text{ wardrobes}\right) \left(\frac{1200}{390}\right)$$

$$\downarrow \quad \downarrow$$

$$46.153846 \leftrightarrow 1200 \text{ wardrobes}$$

employees

47

employees

(Total for Question 4 is 3 marks)



5 Vera is a shop manager.

She has this information about the income in her shop for eight weeks this year.

Week	1	2	3	4	5	6	7	8
Income (thousands of £)	53.5	42.3	39.8	45.1	52.4	19.4	47.9	42.5

The median income for the same eight weeks last year was £49 300

Vera knows that the median income for these eight weeks has decreased this year compared to last year.

(a) Work out the percentage decrease of the median income.

Give your answer to 2 decimal places.

(4)

Median this year:

Put into ascending order:

~~39.8~~

~~19.4~~, ~~39.8~~, ~~42.3~~, 42.5, 45.1, ~~47.9~~,

~~52.4~~, ~~53.5~~

$$\text{Median: } \frac{42.5 + 45.1}{2} = 43.8$$

$$\% \text{ change} = \frac{\text{Change}}{\text{Original}} \times 100$$

$$\text{Change} = 49.3 - 43.8 = 5.5$$

$$\text{Original} = \text{last year's median} = 49.3$$

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$$\% \text{ change} = \frac{5.5}{49.3} \times 100 = 11.1561866\%$$

2 decimal places = 11.16%

11.16

%



(b) Show a check of your calculation for the median.

(1)

(Total for Question 5 is 5 marks)



S 6 8 2 1 5 A 0 7 2 0

- 6 Carlos invests £4500 for 3 years.
He receives compound interest of 1.5% per year.

Carlos thinks the total of the money he invests and the interest will be more than £4750 at the end of the 3 years.

Is he correct?
Show why you think this.

(3)

Increasing by 1.5% means
multiply by 1.015.

For 3 years means multiply by 1.015^3
(Compound interest)

$$4500 \times 1.015^3 = \underline{\underline{£4705.55}}$$

No Carlos is wrong.

(Total for Question 6 is 3 marks)

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7

(a) Write 21.9% as a decimal.

(1)

$$21.9 \div 100 = 0.219$$

0.219

(b) Work out 37% of 4618.57
Give your answer to 1 decimal place.

(2)

$$\begin{aligned} &4618.57 \times 0.37 \\ &= 1708.8709 \\ &= 1708.9 \quad (1 \text{ decimal place}) \end{aligned}$$

1708.9

(c) Write fifty-one million forty-nine thousand one hundred and twelve in figures.

(1)

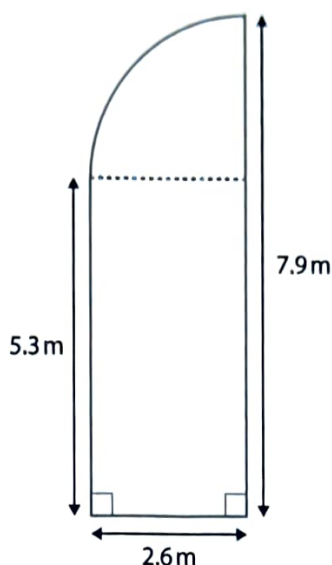
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(Total for Question 7 is 4 marks)



8 Jessie needs to cover a wooden floor with varnish.

The floor is in the shape of a rectangle and a quarter circle.



A tin of varnish

- covers 6 m^2
- costs £5.41

Jessie has £25 to buy the tins of varnish she needs to cover this wooden floor.

Is £25 enough to buy all the tins of varnish Jessie needs?

$$\begin{aligned} \text{Area of Circle: } \pi r^2 &= \pi \times 2.6^2 = 6.76\pi \text{ m}^2 && (6) \\ &= 21.23716634 \text{ m}^2 \end{aligned}$$

$$\begin{aligned} \text{Area of quarter of the circle:} \\ 21.23716634 \div 4 &= 5.309291585 \text{ m}^2 \end{aligned}$$

$$\text{Area of rectangle: } 2.6 \times 5.3 = 13.78 \text{ m}^2$$

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$$\begin{aligned} \text{Total area} &= 13.78 + 5.309291585 \\ &= 19.08929159 \text{ m}^2 \end{aligned}$$

No. tins needed:

$$19.08929159 \div 6 = 3.181548598 \text{ tins.}$$

So need 4 tins

Cost of tins:

~~$$3.181548598 \times 5.41$$~~

$$4 \times \pounds 5.41 = \underline{\underline{\pounds 21.64}}$$

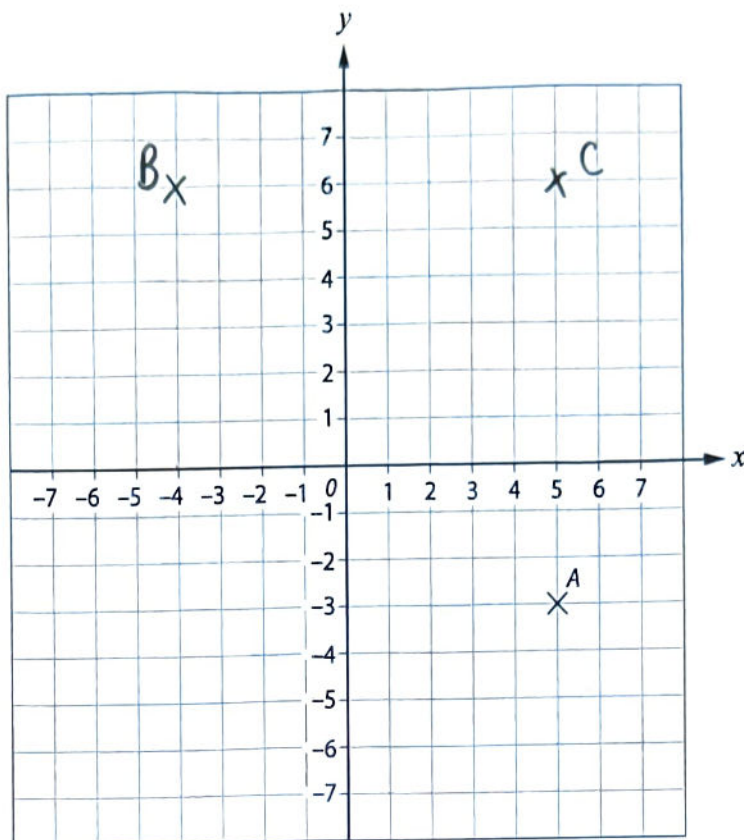
Yes $\pounds 25$ is enough so Jessie is correct.

(Total for Question 8 is 6 marks)



S 6 8 2 1 5 A 0 1 1 2 0

9 Here is a coordinate grid.



(a) Write down the coordinates of point A.

(1)

(5, -3)

(b) Plot point B with coordinates $(-4, 6)$ on the grid.
Remember to label your point.

(1)

(c) Plot a point C on the grid so that angle ACB is a right angle.
Remember to label your point.

(1)

(Total for Question 9 is 3 marks)

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- 10 Kevin buys a second-hand car for £7346
 He knows that the car is worth 27% less than when it was brand new.
 Kevin thinks that the car cost more than £9000 when brand new.

Is Kevin correct?
 Show why you think this.

$$100\% - 27\% = 73\% = 0.73 = \text{A decrease of } 27\% \quad (3)$$

$$0.73 \times \text{Original price} = £7346$$

$$\begin{aligned} \text{Original price} &= £7346 \div 0.73 \\ &= £10063.01369863 \\ &= \underline{\underline{£10063.01}} \end{aligned}$$

Yes
 Kevin is correct.

(Total for Question 10 is 3 marks)



S 6 8 2 1 5 A 0 1 3 2 0

11 Emma is the recruitment manager in a large company.

She has this information about the number of workers in each of the 20 offices of the company.

number of workers	number of offices
1 to 20	9
21 to 40	8
41 to 60	2
61 to 80	1

Emma estimates the mean number of workers in an office as 30

- (a) Is Emma correct?
Show why you think this.

No Workers	frequency	midpoint	frequency \times midpoint
1 to 20	9	10.5	94.5
21 to 40	8	30.5	244
41 to 60	2	50.5	101
61 to 80	1	70.5	70.5

Estimated
Total no. workers: $94.5 + 244 + 101 + 70.5$
 $= 510$

Estimated mean = $\frac{510}{(9+8+2+1)} = \frac{510}{20}$
 $= 25.5$

No, Emma is not correct.

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200 people apply to work at a new office.
49 of these people are employed.

(b) Work out 49 as a percentage of 200

(2)

$$\frac{49}{200} \times 100 = 24.5$$

24.5 %

(Total for Question 11 is 5 marks)

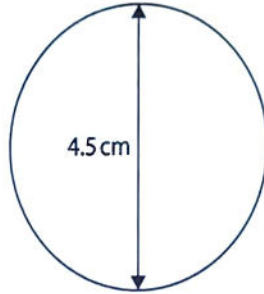


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12 Claire is a designer.

She needs to put some lights around a circular bandstand in a park.

Claire has this scale diagram of the plan view of the bandstand.



scale 1 : 200

Claire knows that

- a set of lights is 4.75 m in length
- each set of lights costs £27.99

(a) Work out the total cost for the sets of lights Claire needs.

(5)

$$\begin{array}{l} \text{Scale} \times 4.5 \\ \left. \begin{array}{l} 1 \text{ cm} : 200 \text{ cm} \\ 4.5 \text{ cm} : 900 \text{ cm} \end{array} \right\} \times 4.5 \end{array}$$

The diameter of the bandstand is 900 cm.

$$\begin{aligned} \text{Circumference of circle} &: \pi \times d = \pi \times 900 \\ &= 900\pi \text{ cm} \\ &= 2827.433388 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{No. sets of lights} &: 2827.433388 \text{ cm} \div 475 \text{ cm} \\ &= 5.95249, \text{ so } 6 \text{ sets needed.} \end{aligned}$$

$$\text{Total cost: } 6 \times 27.99 = \pounds 167.94$$

£ 167.94

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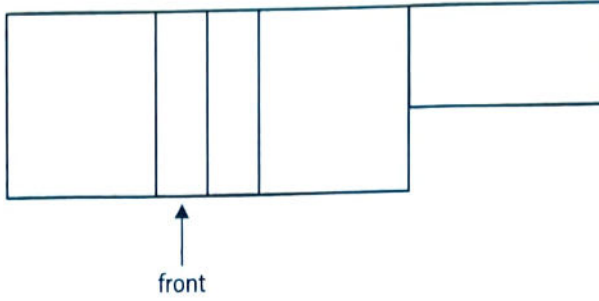
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Here is a plan view of another building Claire designs.

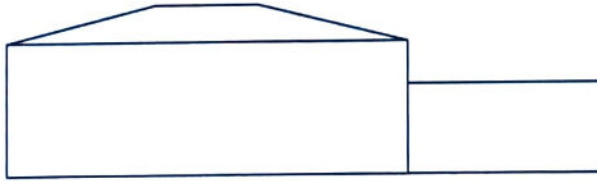


An apprentice draws the front elevation of this building.

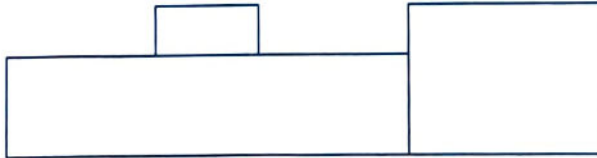
(b) Which sketch below can be the front elevation for this building?
 Tick (✓) the correct answer.

(1)

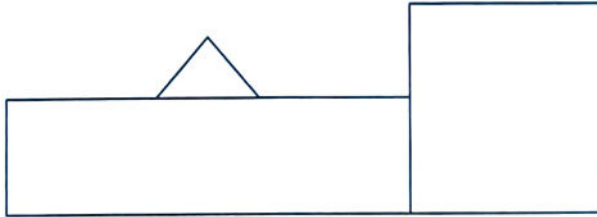
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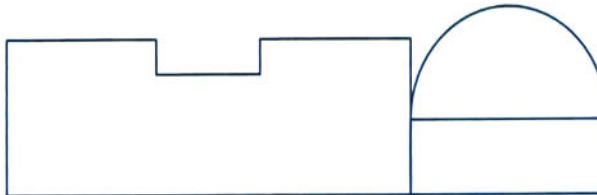
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✓)



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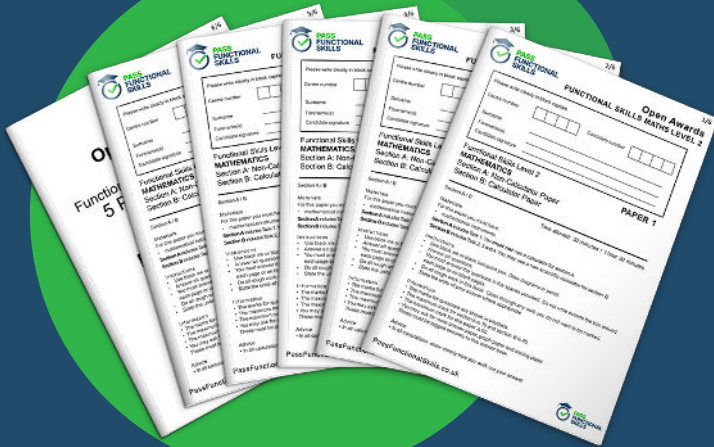
(Total for Question 12 is 6 marks)

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

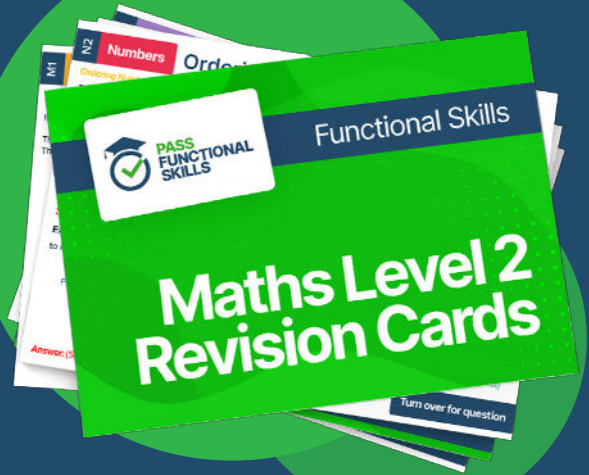




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