



Surname _____

Other Names _____

Centre Number _____

Candidate Number _____

Candidate Signature _____

GCSE

MATHEMATICS

F

Foundation Tier Paper 2 Calculator

8300/2F

Thursday 8 November 2018 Morning

Time allowed: 1 hour 30 minutes

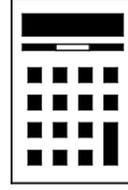
At the top of the page, write your surname and other names, your centre number, your candidate number and add your signature.

[Turn over]



For this paper you must have:

- **a calculator**
- **mathematical instruments.**



INSTRUCTIONS

- **Use black ink or black ball-point pen. Draw diagrams in pencil.**
- **Answer ALL questions.**
- **You must answer the questions in the spaces provided. Do not write on blank pages.**
- **Do all rough work in this book. Cross through any work you do not want to be marked.**



INFORMATION

- **The marks for questions are shown in brackets.**
- **The maximum mark for this paper is 80.**
- **You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.**

ADVICE

In all calculations, show clearly how you work out your answer.

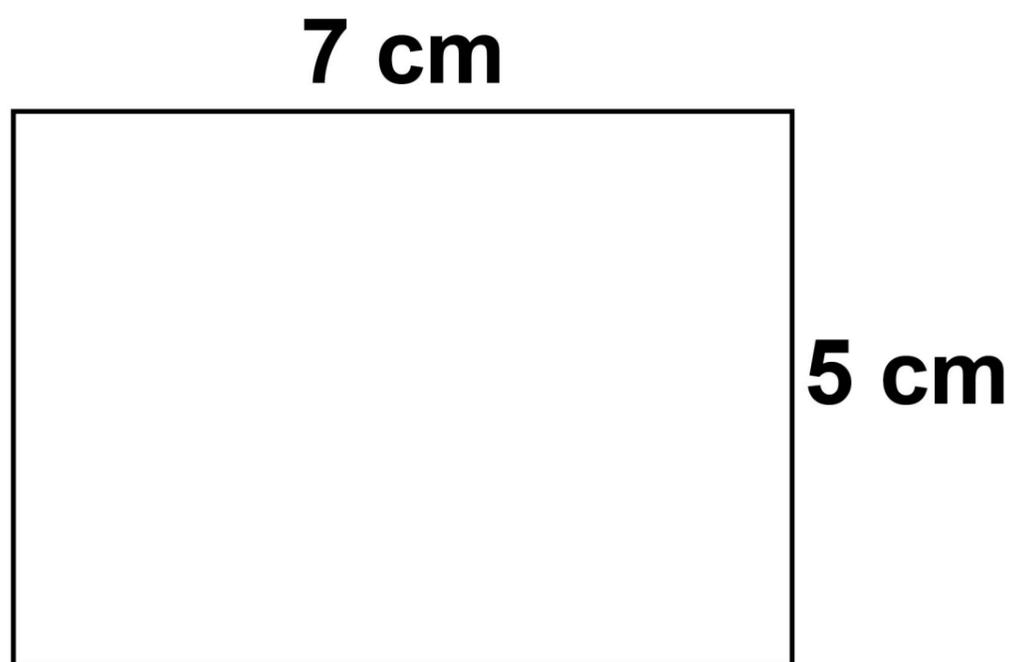
DO NOT TURN OVER UNTIL TOLD TO DO SO



Answer ALL questions in the spaces provided.

1 Here is a rectangle.

The diagram is not drawn accurately.



Work out the perimeter.

Circle your answer. [1 mark]

12 cm

24 cm

35 cm

70 cm



5

**2 Circle the number GREATER than
–0.9 [1 mark]**

–0.901

–0.89

–0.91

$-\frac{9}{10}$

3 Simplify $8x - 3 + 6x$

Circle your answer. [1 mark]

$2x - 3$

$11x$

$5 + 6x$

$14x - 3$

[Turn over]



- 4 What is the angle of turn clockwise from South West to East?



Circle your answer. [1 mark]

45°

135°

225°

315°

4

5 Lucy works for 37 hours per week.

Her weekly wage is £303.40

She receives a pay increase of 25p per hour.

**Work out her new weekly wage.
[2 marks]**

Answer £ _____

[Turn over]



6 (a) Complete the bank statement. [3 marks]

Date	Description	Credit (£)	Debit (£)	Balance (£)
01/09/18	Starting balance			1140.79
06/09/18	Car repairs		256.00	_____
17/09/18	Gas bill		87.31	_____
24/09/18	Salary	2069.75		_____



6 (b) Write down the meaning of 'Debit' as used in the bank statement. [1 mark]

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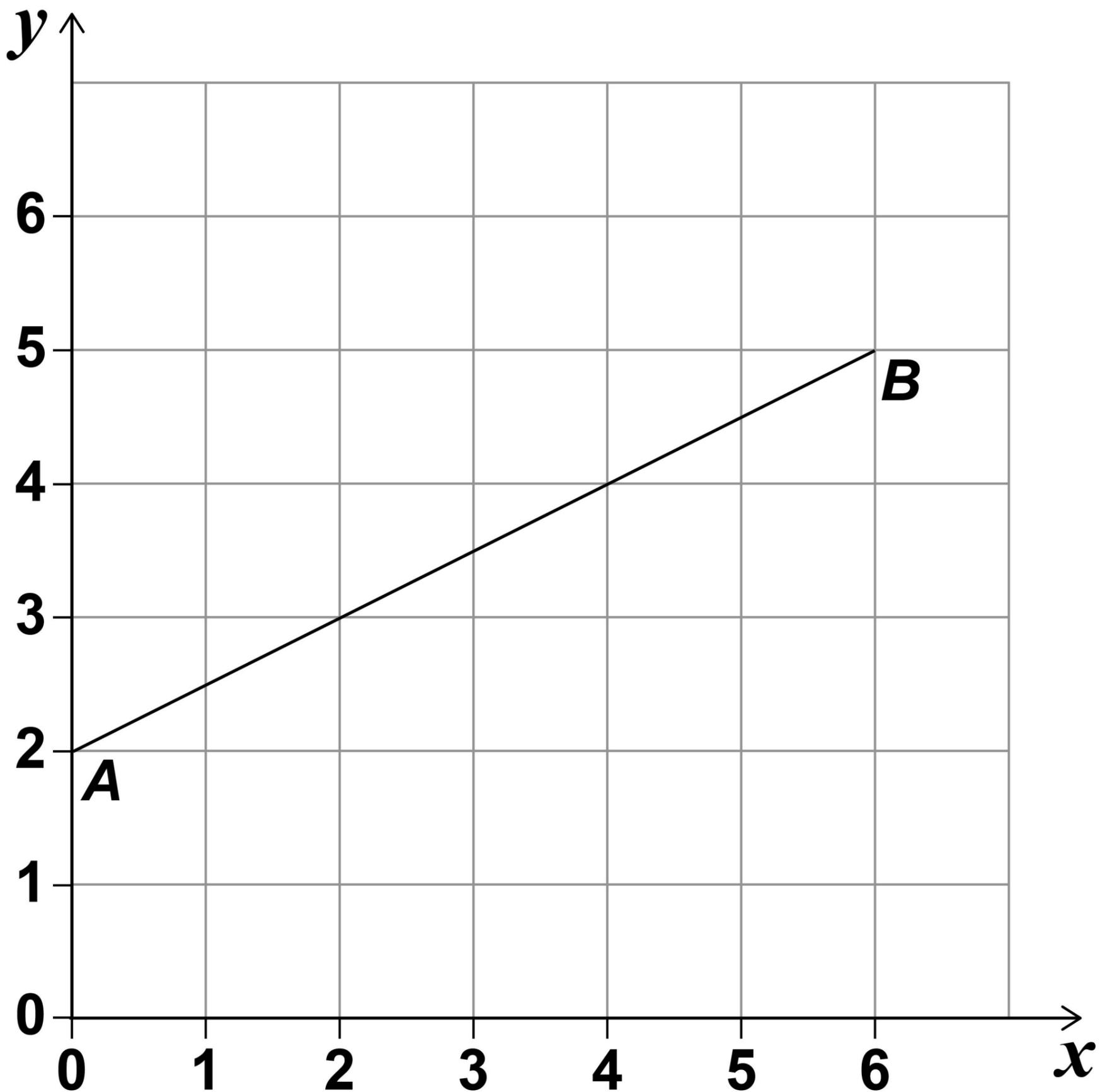
[Turn over]



7 Line AB is shown on the grid.

A is the point $(0, 2)$

B is the point $(6, 5)$



7 (a) Work out the coordinates of the midpoint of the line AB . [1 mark]

Answer (_____ , _____)

7 (b) C is another point on AB .

C is closer to B than to A .

The coordinates of C are whole numbers.

**Work out the coordinates of C .
[1 mark]**

Answer (_____ , _____)

7 (c) On the grid, draw a line from point $(0, 0)$ that is

parallel to AB

and

two thirds as long as AB . [2 marks]

[Turn over]

4



8 Lena is at the gym.

8 (a) She will use each of these pieces of equipment once.

Rowing machine (R)

Stepper (S)

Treadmill (T)

Bike (B)

Lena will use the rowing machine FIRST.

List all the possible orders in which she could use the four pieces of equipment. [2 marks]

[Turn over]



8 (b) The table shows how long Lena spends on each piece of equipment.

Rowing machine	15 minutes
Stepper	13 minutes
Treadmill	35 minutes
Bike	1 hour 30 minutes

Lena starts on the rowing machine at 1.50 pm

She has a break for 4 minutes between pieces of equipment.

**What time does she finish on her last piece of equipment?
[3 marks]**



- 9 The table shows the number of messages Sam received each day for five days.

	Messages	
	Number of emails	Number of texts
Monday	12	5
Tuesday	8	6
Wednesday	10	3
Thursday	6	6
Friday	12	4

- 9 (a) Sam draws a composite bar chart to represent the data.

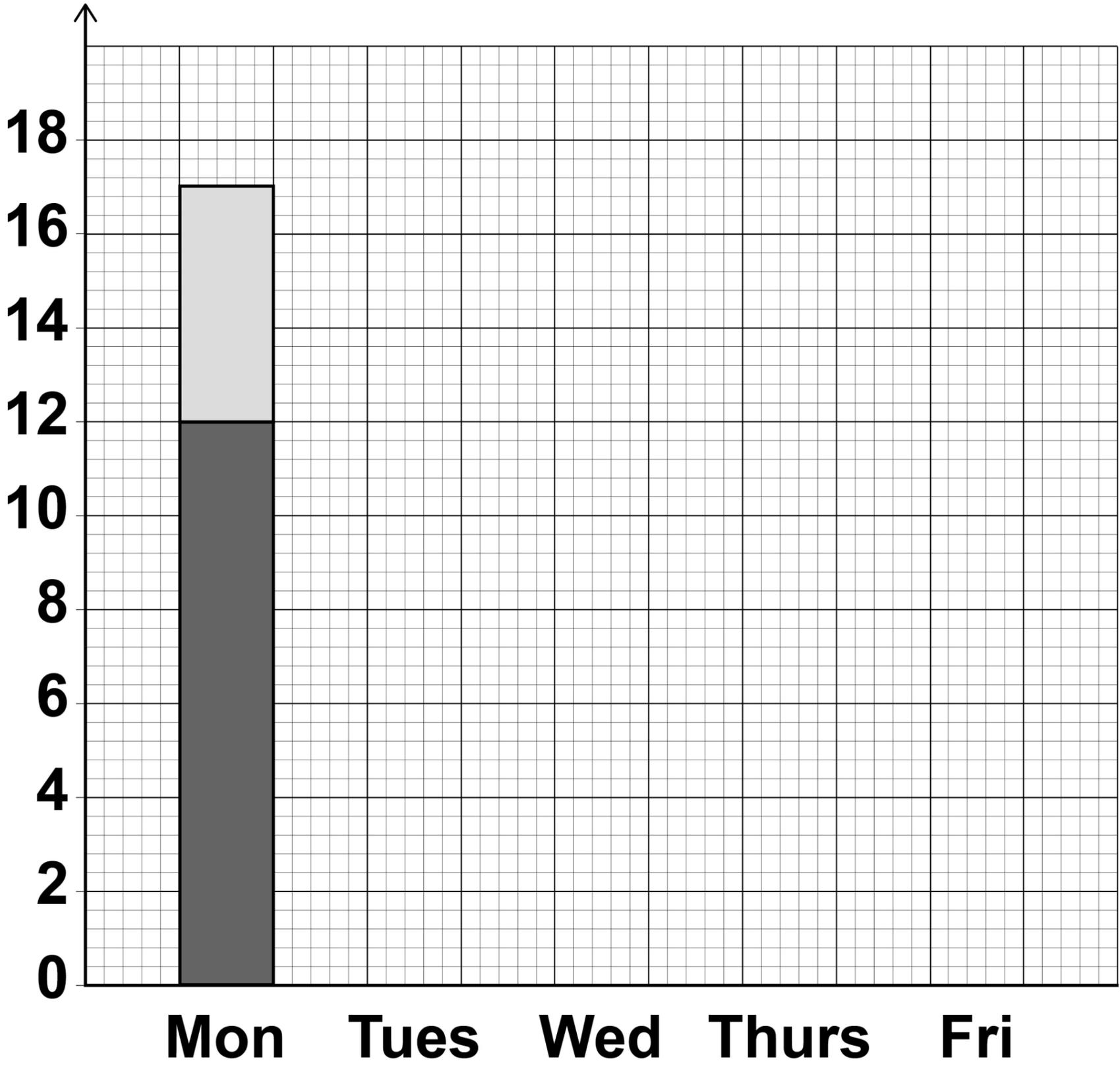
He has drawn the bar for Monday.

Complete the chart on page 17.
[2 marks]



Messages received

Number of messages received



KEY:

 **emails**  **texts**

[Turn over]



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- 10 Each side of a square is made 3 times as long.**

What happens to the perimeter?

Circle your answer. [1 mark]

× 3

× 6

× 9

× 12

<div style="border-bottom: 1px solid black; width: 20px; margin: 0 auto;"></div> 6

- 11 Here is a list of ingredients needed to make 6 pancakes.**

Flour	120 grams
Eggs	2
Milk	210 millilitres

- 11 (a) Complete the list of ingredients needed to make 9 pancakes. [3 marks]**



Flour	_____
Eggs	_____
Milk	_____

11 (b) Convert 210 millilitres to fluid ounces.

Use 1 fluid ounce = 28.4 millilitres

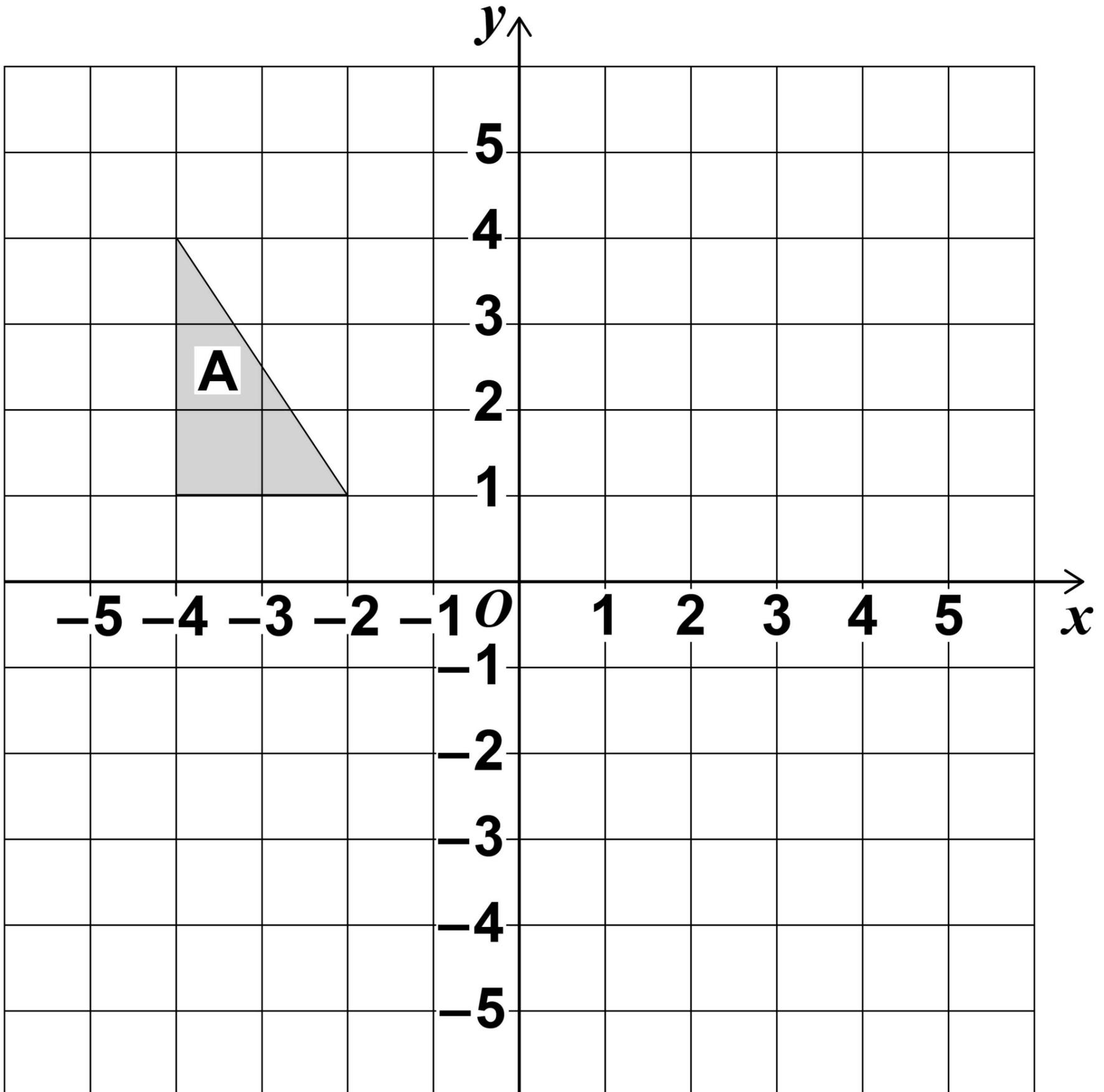
Give your answer to 1 decimal place. [2 marks]

Answer _____ fluid ounces

[Turn over]



**12 Reflect shape A in the x -axis.
[2 marks]**



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[Turn over]



13 A charity sends an appeal letter to 3000 people.

The letter asks for a donation of money.

Here is some information about the last appeal letter the charity sent out.

$\frac{1}{2}$ of the people who were sent the letter made a donation.

The average donation was £8.60

$\frac{1}{3}$ of the people who made a donation filled in a tax form.

The government adds 25% to the donations of these people.

Answer £ _____

13 (b) The average donation from the people who filled in a tax form was more than £8.60

How does this affect your answer to part (a)?

Tick ONE box.

It should be lower

It should be higher

It should stay the same



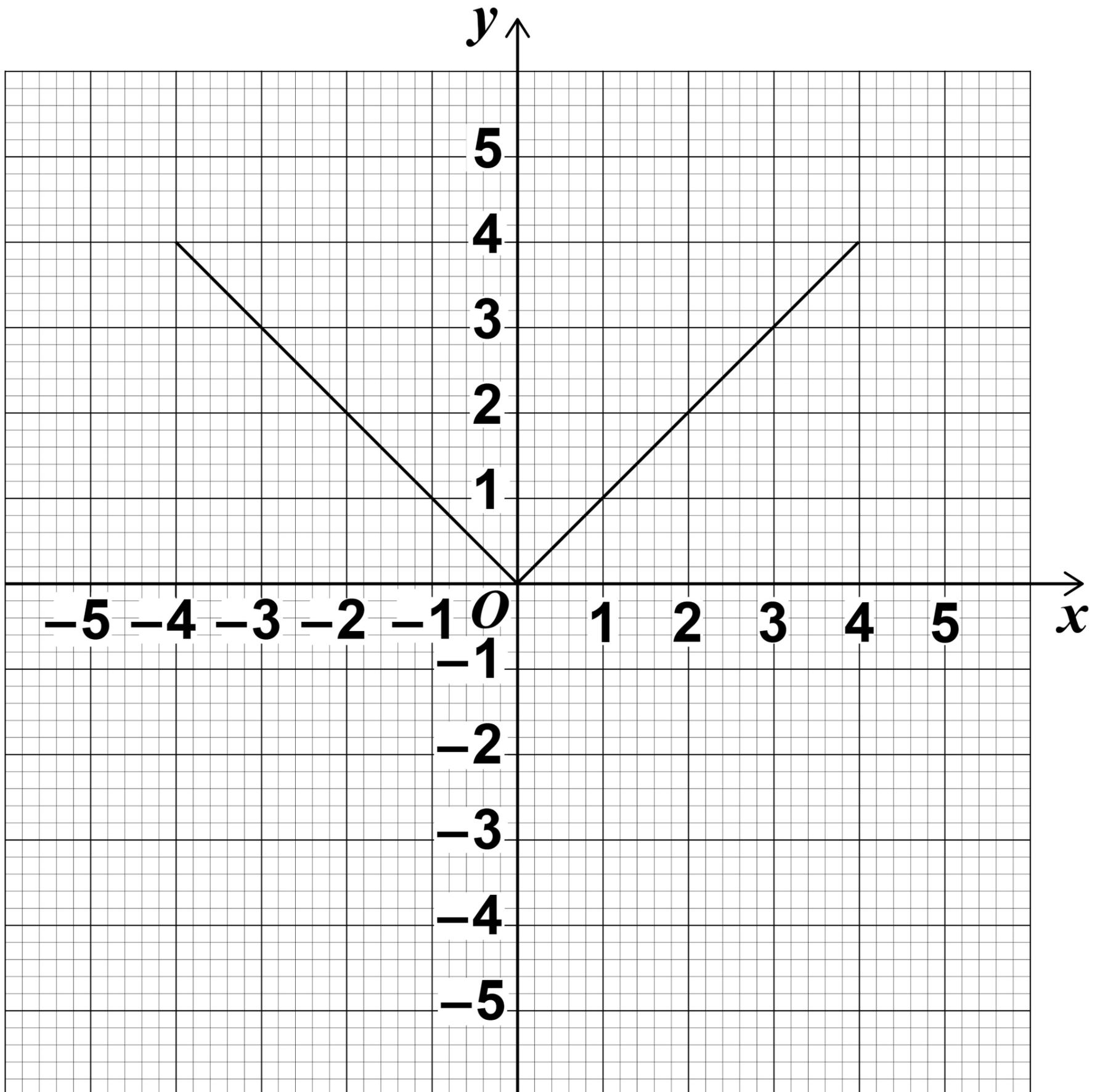
Give a reason. [1 mark]

[Turn over]

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7

14 Lee wants to draw the graph of $y = x$ for values of x from -5 to 5

Here is his graph.



Make two DIFFERENT criticisms of his graph. [2 marks]

Criticism 1

Criticism 2

[Turn over]

15 A company uses this formula to work out the cost, $\pounds A$, of a taxi ride.

$$A = 4 + 1.8m + b$$

$\pounds 4$ is a fixed charge

m is the number of miles travelled

$\pounds b$ is a charge for booking online

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**15 (b) A different company
has a fixed charge of £3
charges £1.90 per mile
has no charge for booking
online.**

**Write a formula for the cost, £ C ,
of a taxi ride with this company.
[1 mark]**

Answer _____

[Turn over]

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6



16 What does $(A \cap B)$ represent in $P(A \cap B)$?

Circle your answer. [1 mark]

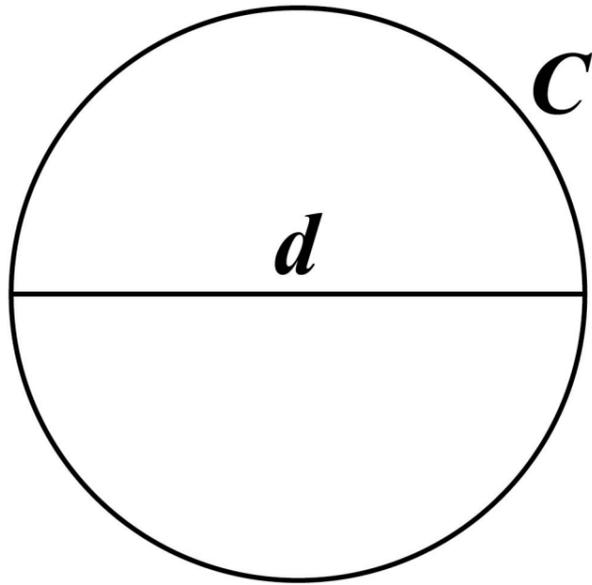
A or B or both

A but not B

not A and not B

A and B

- 17 A circle has circumference C and diameter d .



$$C = kd$$

What VALUE does the constant k represent? [1 mark]

Answer _____

[Turn over]



18 There are 240 cows on a farm.

18 (a) On the farm,

**number of bulls : number of cows
= 1 : 30**

**How many bulls are there?
[1 mark]**

Answer _____

18 (b) Assume

**the 240 cows produce milk for 10
months each year**

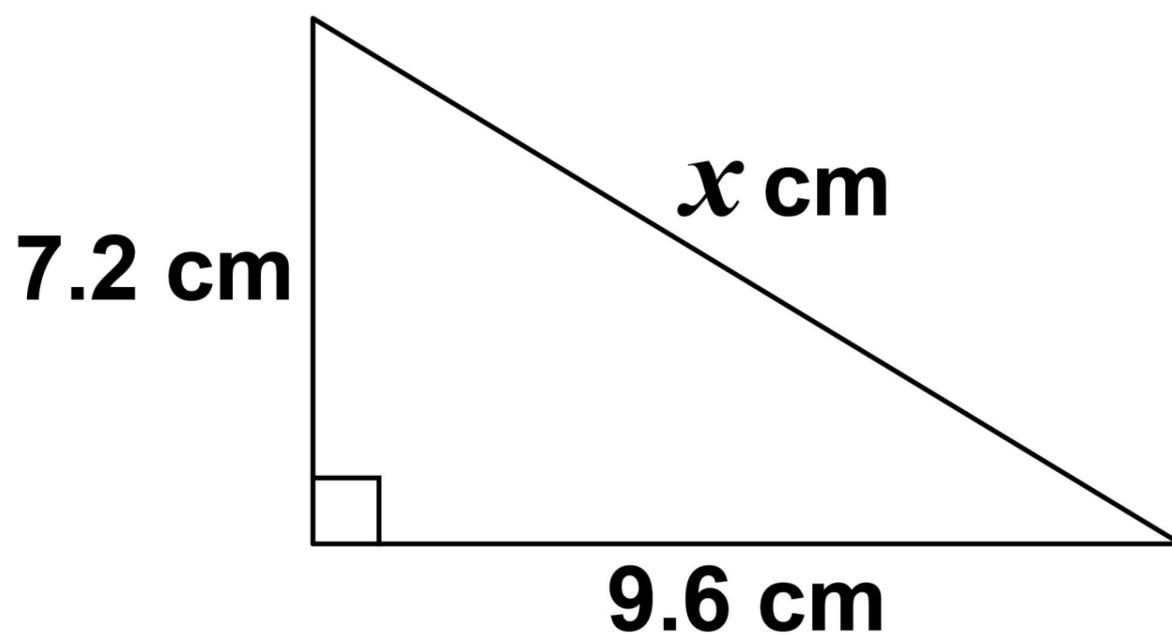
**each cow produces an average of
25 litres of milk per day.**

**Estimate the total milk
production, in litres, of the
240 cows in one year.**



19 Here is a right-angled triangle.

The diagram is not drawn accurately.



Show that $x = 12$ [2 marks]

[Turn over]

$a =$ _____ $b =$ _____

21 The first four terms of a linear sequence are

7 11 15 19

Circle the expression for the n th term. [1 mark]

$n + 6$

$4n + 3$

$7n + 4$

$n + 4$

[Turn over]

<hr/>
7



22 Here is some information about 20 trains leaving a station.

Number of minutes late, t	Number of trains	Midpoint	
$0 \leq t < 5$	12		
$5 \leq t < 10$	7		
$10 \leq t < 15$	1		
$t \geq 15$	0		



**22 (a) Work out an estimate of the mean number of minutes late.
[3 marks]**

Answer _____ minutes

[Turn over]

22 (b) The station manager looks at the information in more detail.

Number of minutes late, t	Number of trains
$0 \leq t < 2$	12
$2 \leq t < 4$	0
$4 \leq t < 6$	7
$6 \leq t < 8$	0
$8 \leq t < 10$	0
$10 \leq t < 12$	1

He works out an estimate of the mean using this information.



How does his estimate compare with the answer to part (a)?

Tick ONE box. [1 mark]

Higher than part (a)

Same as part (a)

Lower than part (a)

Not possible to tell

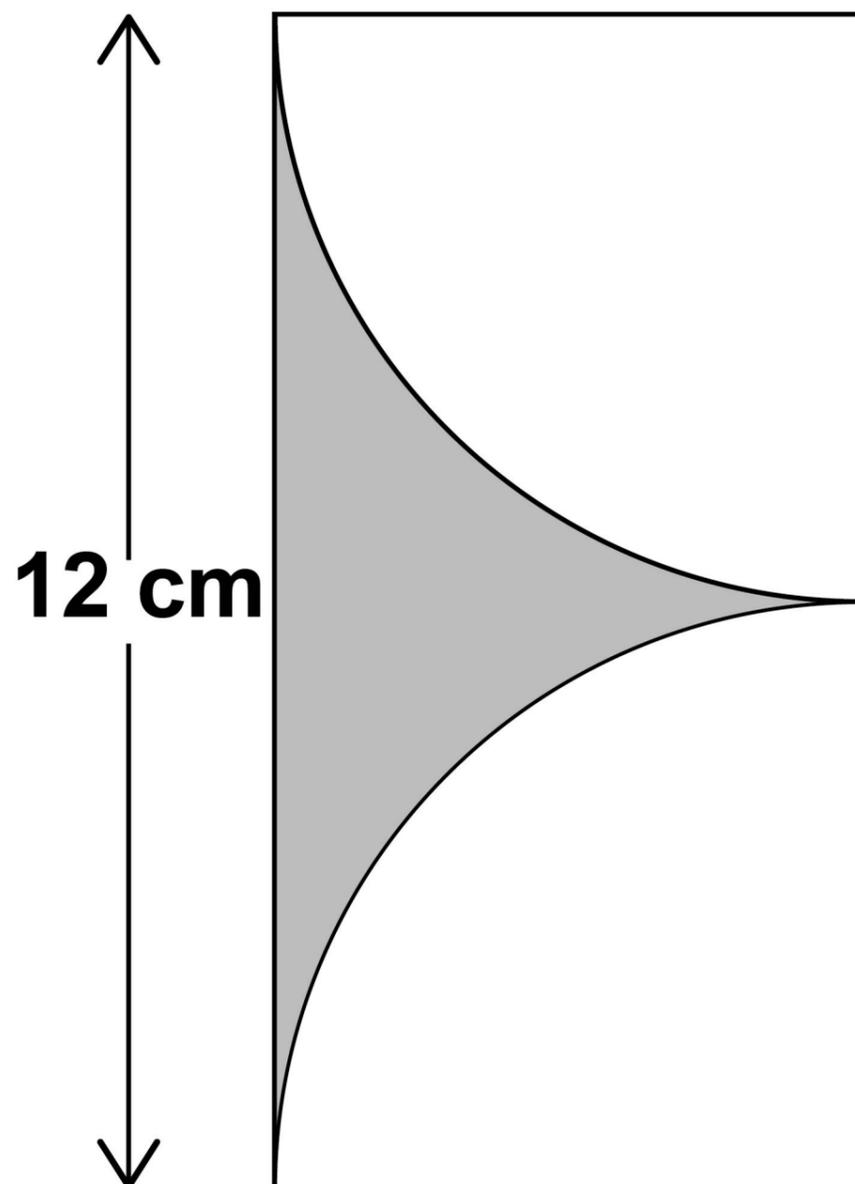
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[Turn over]



23 Two identical quarter circles are cut from a rectangle as shown.

The diagram is not drawn accurately.



Work out the shaded area.
[4 marks]

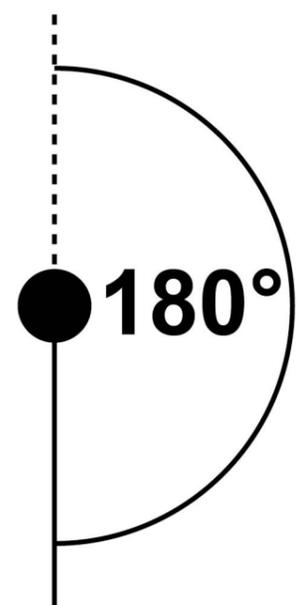
24 The diagrams show the position of a tap when off and fully on.

The tap is fully on when the angle of turn is 180°

Off



Fully on



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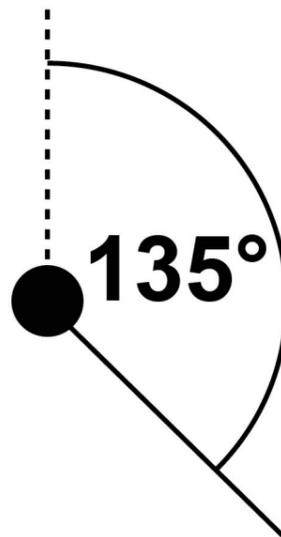
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When fully on, water flows out of the tap at 14 litres per minute.

The rate at which water flows out is in direct proportion to the angle of turn.

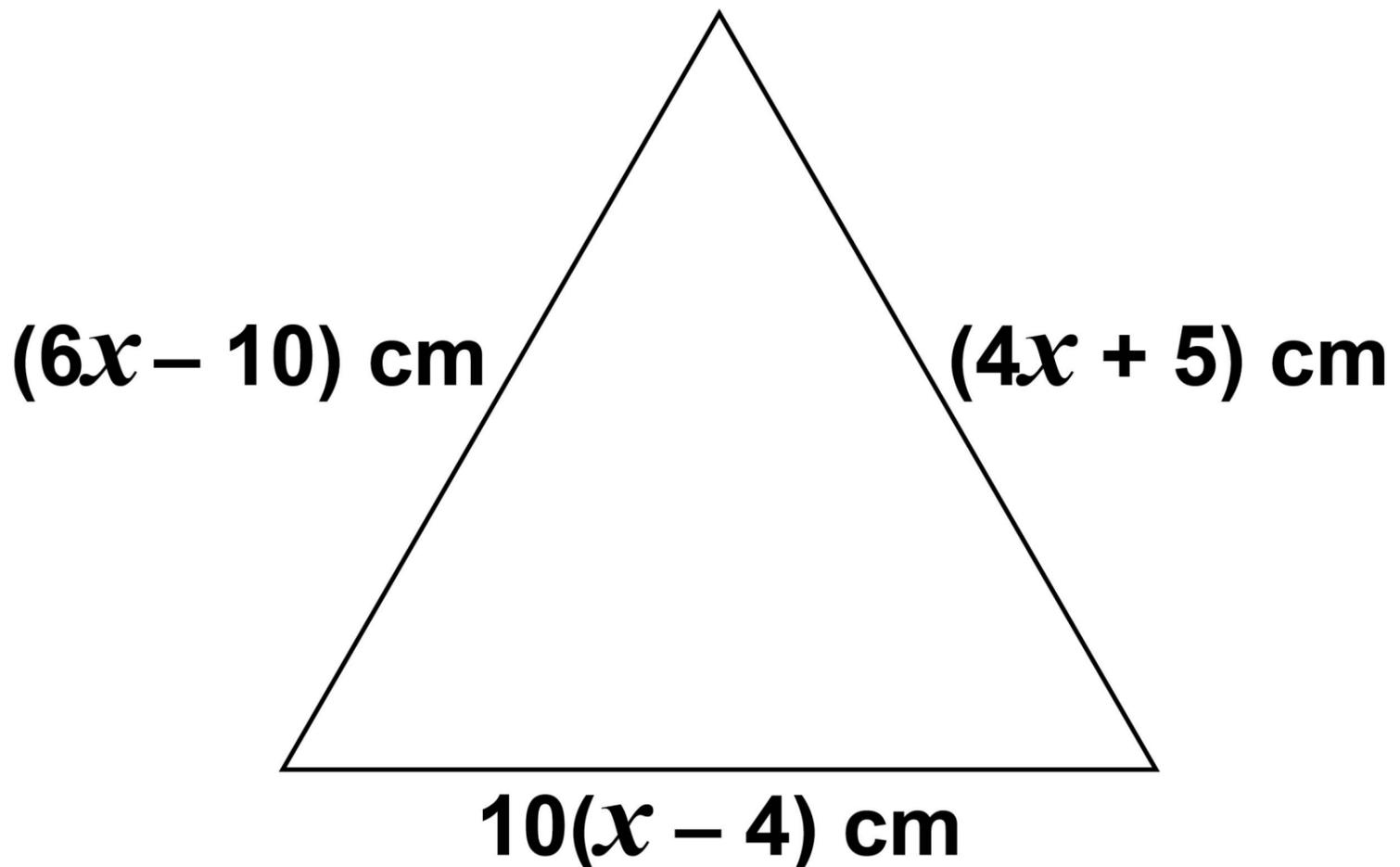
The tap is turned 135°



The water flows into a tank with a capacity of 79.8 litres.

25 This triangle is equilateral.

The diagram is not drawn accurately.



Is the perimeter of the triangle greater than one metre?

**You MUST show your working.
[5 marks]**

27 Work out $\frac{9.12 \times 10^{10}}{3.2 \times 10^4}$

Give your answer in standard form.
[2 marks]

Answer _____

END OF QUESTIONS

9

There are no questions printed on this page

For Examiner's Use	
Pages	Mark
4–6	
7–9	
10–11	
12–15	
16–20	
20–22	
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52–55	
TOTAL	

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