A

AQA

Surname _____

Other Names _____

Centre Number _____

Candidate Number _____

Candidate Signature _____

GCSE

MATHEMATICS

F

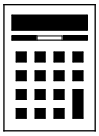
Foundation Tier **Paper 2 Calculator**

8300/2F

Thursday 8 November 2018 **Morning**

Time allowed: 1 hour 30 minutes

For this paper you must have:
- **a calculator**
- **mathematical instruments.**



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

[Turn over]

BLANK PAGE

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

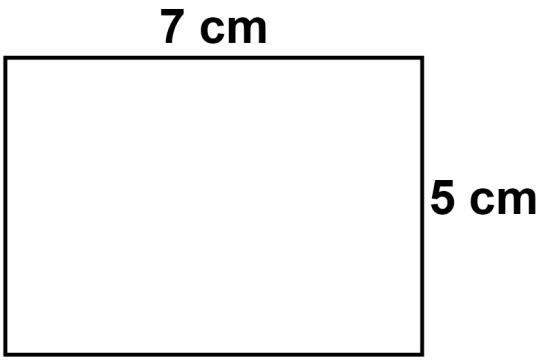
In all calculations, show clearly how you work out your answer.

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

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]

$2x - 3$ $11x$ $5 + 6x$ $14x - 3$

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

Circle your answer. [1 mark]

45° 135° 225° 315°

[Turn over]

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 £ _____

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		

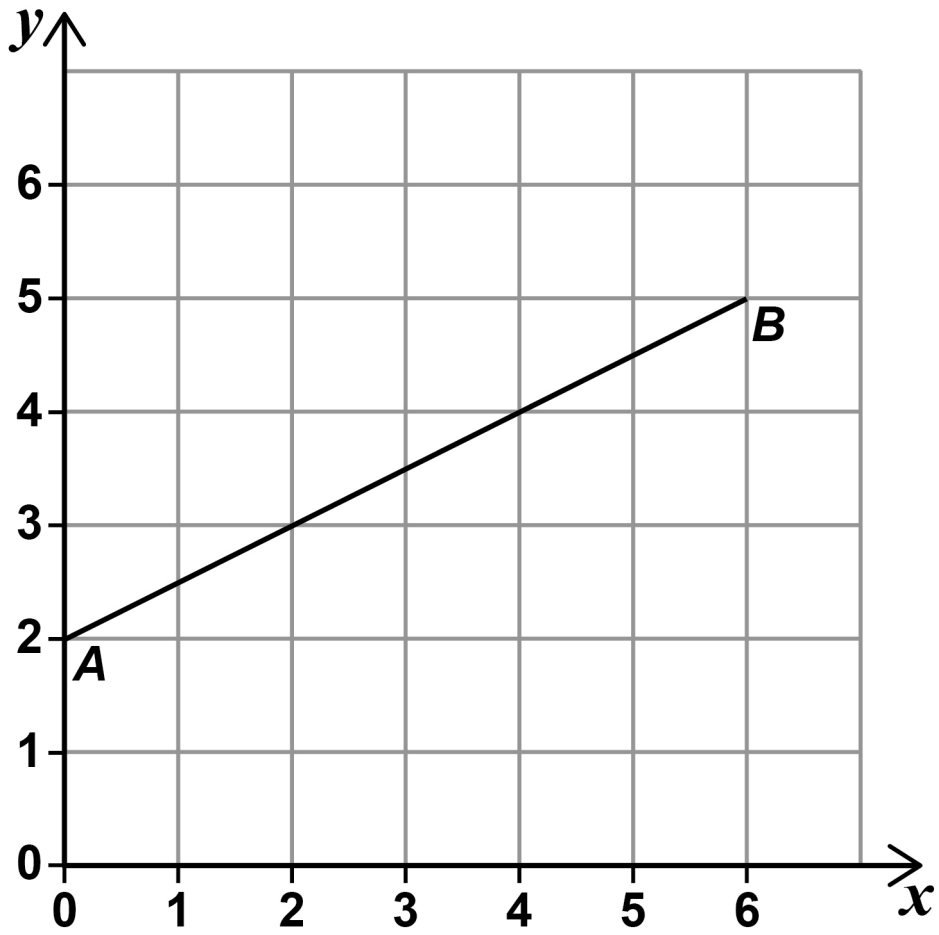
6 (b) Write down the meaning of 'Debit' as used in the bank statement. [1 mark]

6

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]

BLANK PAGE

[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]

Answer _____

5

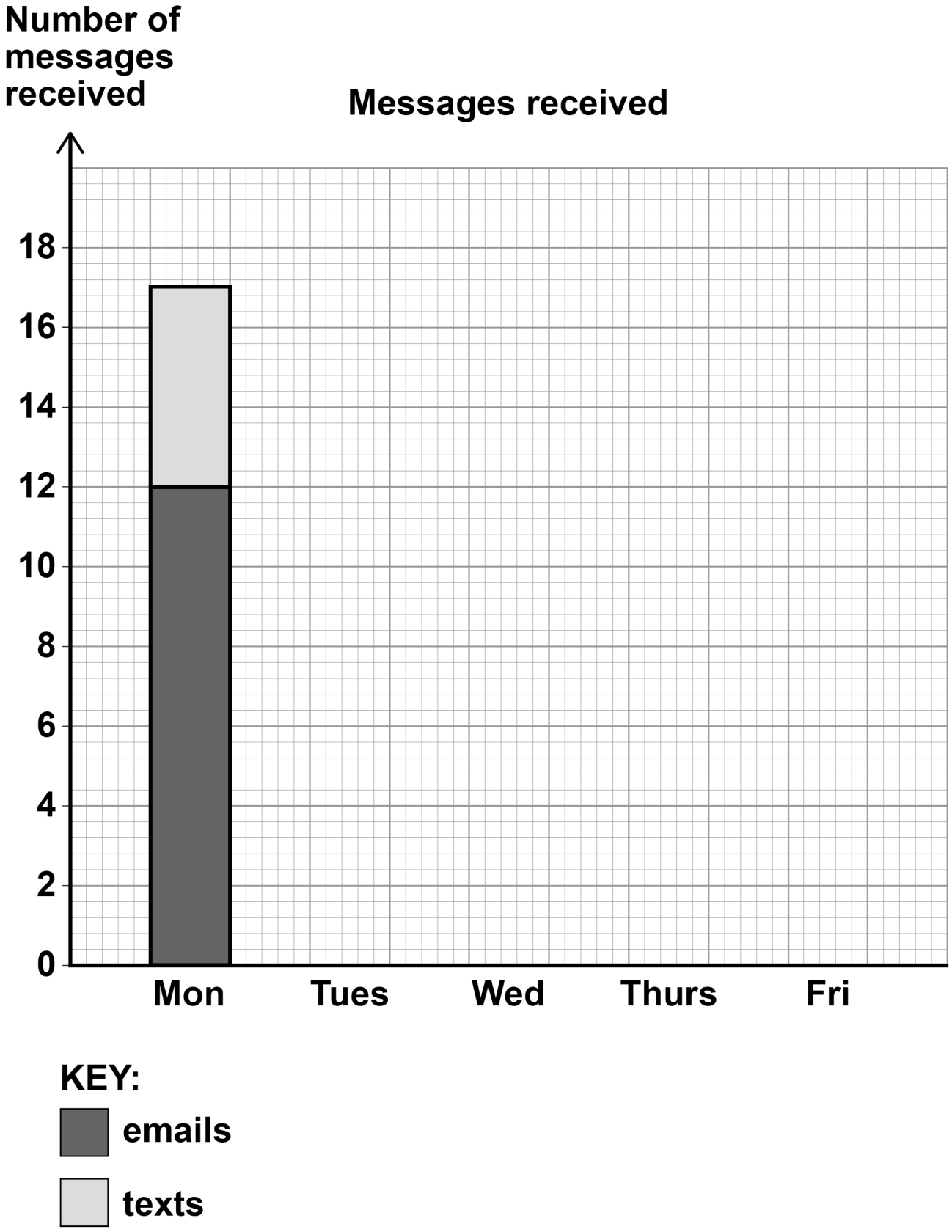
9 The table shows the number of messages Sam received each day for five days.

	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 15. [2 marks]



BLANK PAGE

9 (b) **In total, what fraction of the messages were emails?**

Give your answer in its simplest form. [3 marks]

Answer _____

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

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.

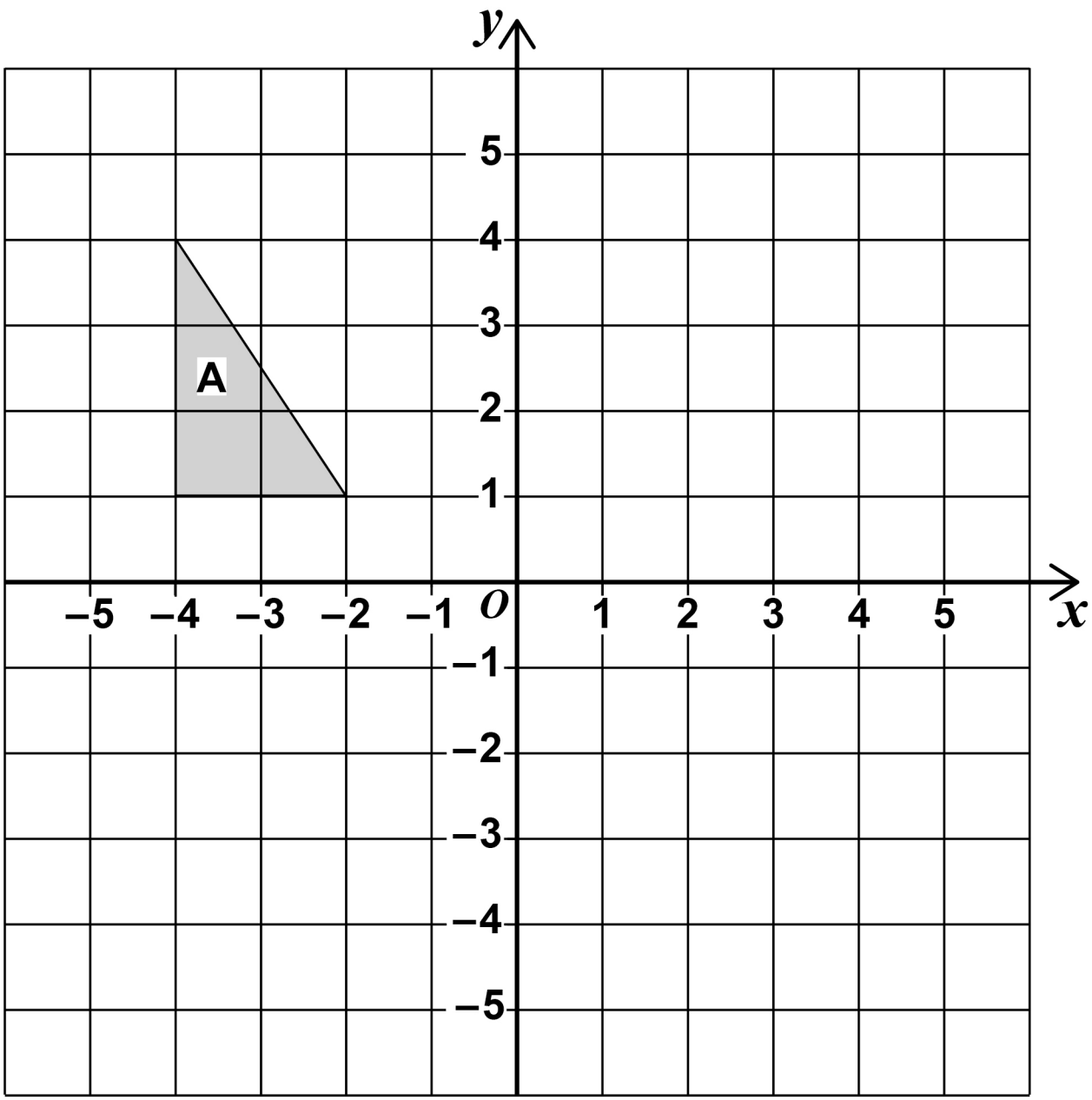
Use 1 fluid ounce = 28.4 millilitres

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

Answer _____ **fluid ounces**

[Turn over]

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



7

BLANK PAGE

[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.

13 (a) Using this information,

work out the amount the charity can expect to receive from this appeal. [6 marks]

Answer £ _____

BLANK PAGE

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

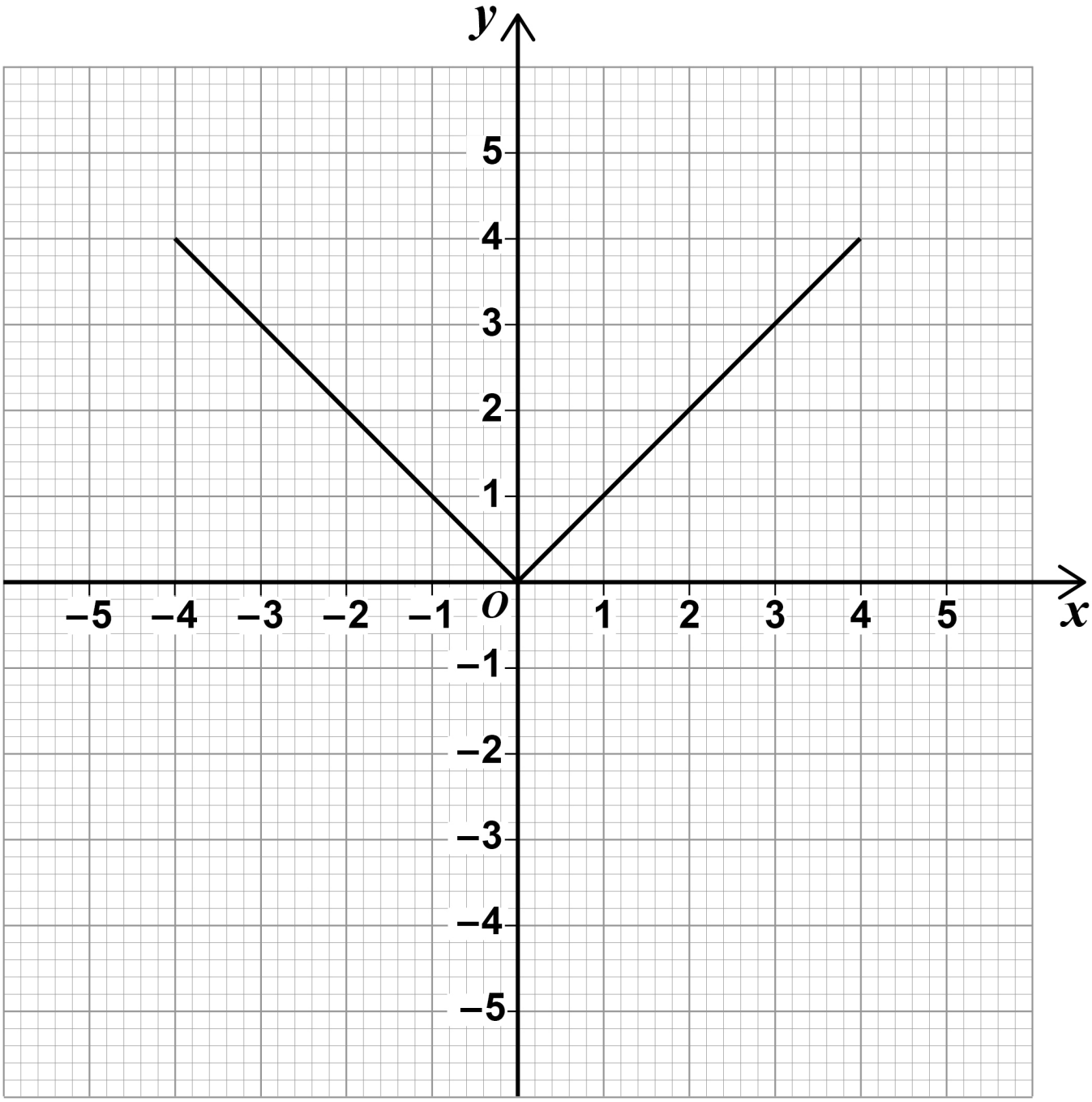
☐ It should stay the same

Give a reason. [1 mark]

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, £A, of a taxi ride.

$A = 4 + 1.8m + b$

£4 is a fixed charge

m is the number of miles travelled

£b is a charge for booking online

15 (a) Clare books a taxi online and travels 8 miles.

She pays £20 altogether.

How much is the charge for booking online?
[3 marks]

Answer £ _____

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 _____

6

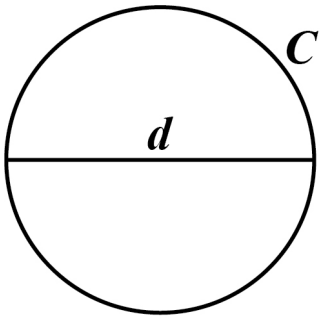
16 What does (A ∩ B) represent in P(A ∩ B) ?

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 _____

BLANK PAGE

[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.

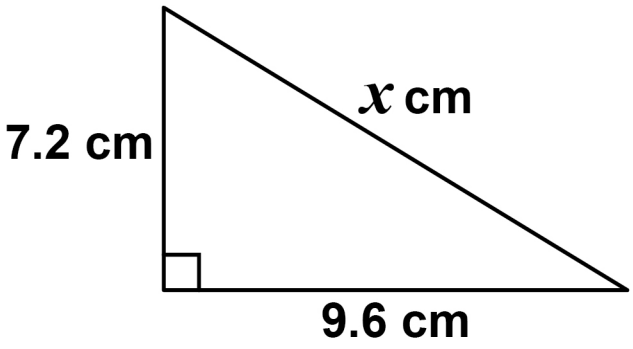
You MUST show your working. [4 marks]

Answer _____ **litres**

7

19 Here is a right-angled triangle.

The diagram is not drawn accurately.



Show that $x = 12$ [2 marks]

[Turn over]

20 Work out the values of a and b in the identity

$5(7x + 8) + 3(2x + b) \equiv ax + 13$ [4 marks]

a = _____ b = _____

21 The first four terms of a linear sequence are

7 11 15 19

Circle the expression for the nth term. [1 mark]

$n + 6$ $4n + 3$ $7n + 4$ $n + 4$

[Turn over]

7

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

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

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

Answer _____ minutes

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

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

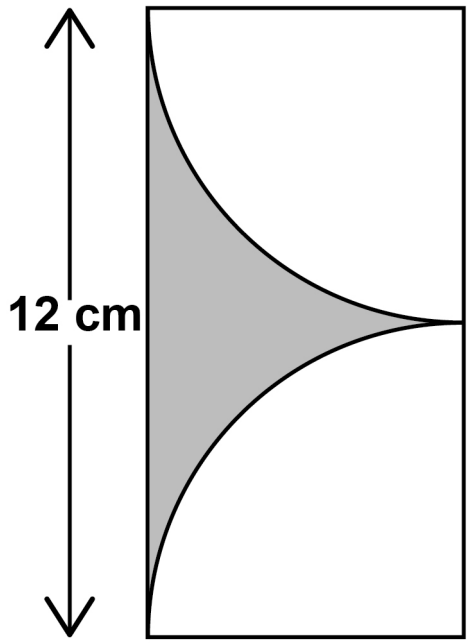
☐ Not possible to tell

[Turn over]

4

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]

Answer _____ cm^2

[Turn over]

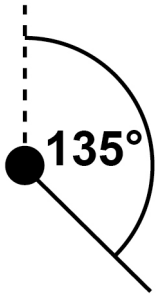
24 **The diagrams show the position of a tap when off and fully on.**

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

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 135º



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

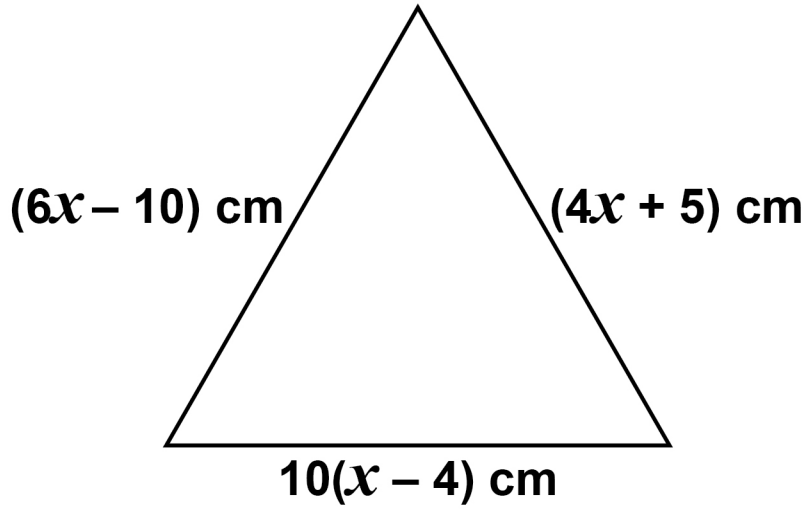
Will it take less than $7\frac{1}{2}$ minutes to fill the tank?

You MUST show your working. [4 marks]

8

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]

[Turn over]

26 An approximation for the value of π is given by

$$4\left(1-\frac{22}{57}+\frac{22}{85}-\frac{22}{105}+\frac{22}{117}-\frac{22}{242}\right)$$

Use your calculator to show that this approximation is within 0.1 of 3.14 [2 marks]

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

Give your answer in standard form. [2 marks]

Answer _____

9

END OF QUESTIONS

There are no questions printed on this page

For Examiner's Use	
Pages	Mark
4–5	
6–7	
8–9	
10–13	
14–18	
18–20	
22–25	
26–29	
30–33	
34–37	
38–39	
40–43	
44–47	
TOTAL	