edexcel

GCSE Mathematics Practice Tests: Set 6

Paper 1F (Non-calculator)

Time: 1 hour 30 minutes

You should have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser. Tracing paper may be used.

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.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*
- **Calculators must not be used.**
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- You must **show all your working out.**

Information

- The total mark for this paper is 80
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

ALWAYS LEARNING PEARSON

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1. (a) Write 24 570 correct to the nearest thousand.

25,000

(1)

(b) Write 24 570 correct to the nearest hundred.

24 600

(1)

(Total 2 marks)

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2. The table shows part of a bus timetable from Shotton to Alton.

Shotton	07 30	08 00	09 00	10 00	11 00
Crook	07 45	08 15	09 15	10 15	11 15
Prudhoe	07 58	08 28	09 28	10 28	11 28
Hexham	08 15	08 45	09 45	10 45	11 45
Alton	08 30	09 00	10 00	11 00	12 00

A bus leaves Shotton at 07 30

(a) What time should it arrive at Alton?

8.30 am

(1)

Another bus leaves Prudhoe at 08 28

(b) How many minutes should it take to get to Hexham?

17 minutes

(1)

Serena lives in Crook.
She has to be in Hexham by quarter past 11

(c) What is the time of the latest bus she can catch from Crook to arrive in Hexham by quarter past 11? ie. 11.15

10.15

(1)

(Total 3 marks)

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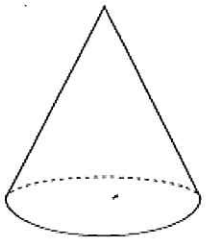
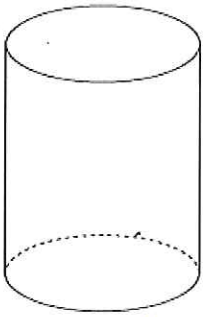
3. Write down the mathematical name of each of these solid shapes.





(i) cone

(ii) cylinder

(Total 2 marks)

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4. (a) Write these numbers in order of size.
Start with the smallest number.

358 835 709 98 145

98, 145, 358, 709, 835

(1)

(b) Write these numbers in order of size.
Start with the smallest number.

4 –5 7 –1 –8

–8, –5, –1, 4, 7

(1)

(c) Write these numbers in order of size.
Start with the smallest number.

$\frac{1}{4}$ 0.2 40% $\frac{3}{4}$ 0.5

25% 20% 40% 75% 50%

0.2, 1/4, 40%, 50%, 75%

(2)

(Total 4 marks)

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5. (a) Simplify $2x + 2x$

4x

(1)

(b) Simplify $5y - 2y$

3y

(1)

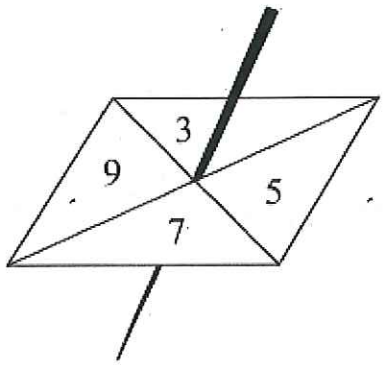
(c) Simplify $2 \times 4p$

8p

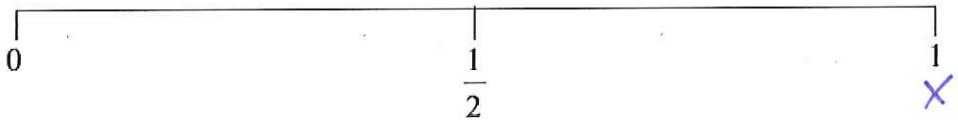
(1)

(Total 3 marks)

6. Ed spins a fair 4-sided spinner once.
The spinner can land on 3 or on 5 or on 7 or on 9

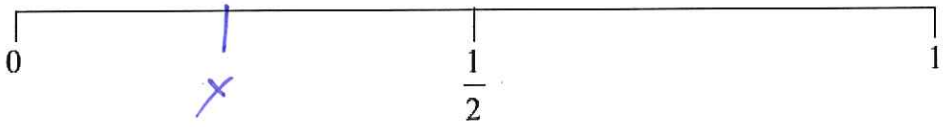


(a) On the probability scale below mark, with a cross (×), the probability that the spinner will land on an odd number.



(1)

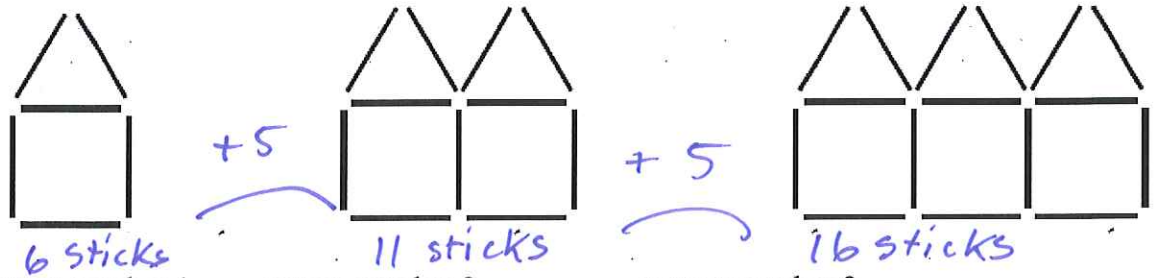
(b) On the probability scale below mark, with a cross (×), the probability that the spinner will land on 3



(1)

(Total 2 marks)

7. Here is a sequence of patterns made from sticks.



pattern number 1 pattern number 2 pattern number 3

Work out the number of sticks needed to make pattern number 10

Term = $5n + 1$

$\therefore 5(10) + 1 = 51$

OR

pattern 4 = 21 + 5 + 5 . . . .

pattern 10 = 51

51

(Total 3 marks)

8. Here are the ticket prices for entry to a museum.

Ticket prices
Adult ticket £12
Child ticket £7
Senior ticket £8
Family ticket (2 adult tickets and 2 child tickets) £30

Shamus takes his family to the museum.

He gets tickets for

2 adults,
3 children,
1 senior.

Can buy 1 Family ticket + 1 child + 1 senior...

Shamus pays the least possible amount of money for the tickets.
He pays with three £20 notes. £60

How much change should he get?

Family ticket = £30
Child " = £7
Senior = £8
£45

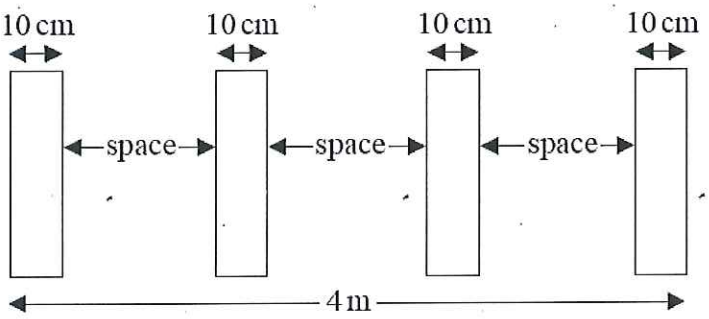
60 − 45 = £15

£ 15

(Total 4 marks)

9. Brian is making a fence.

Diagram **NOT** accurately drawn



The fence will be 4 m long.

Brian uses four posts.
Each post has a width of 10 cm.

Brian wants to have spaces of equal width between the posts.

Work out the width of each space.
You must show your working.

4 posts x 10cm = 40cm.

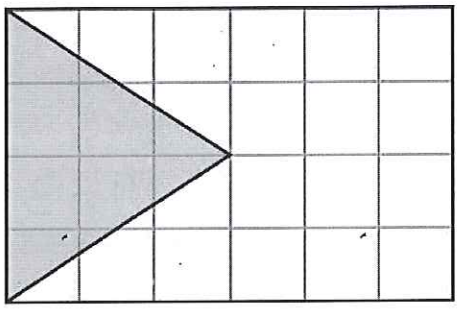
Fence = 400cm
− 40
360.

Space = 360 in total.

There are 3 spaces so $\frac{360}{3}$ = 120cm or 1.2m

Each space must be 120cm/1.2m. **(Total 4 marks)**

10. The diagram shows a flag drawn on a grid of squares.



6 x 4 = 24 squares

(*a*) Colin says that $\frac{1}{4}$ of the flag is shaded.

Colin is right.
Explain why.

There are 24 squares in total, 6 of them are grey/shaded. 1/4 of 24 = 6... Therefore 1/4 of the flag is shaded.

(2)

(*b*) What percentage of the flag is **not** shaded?

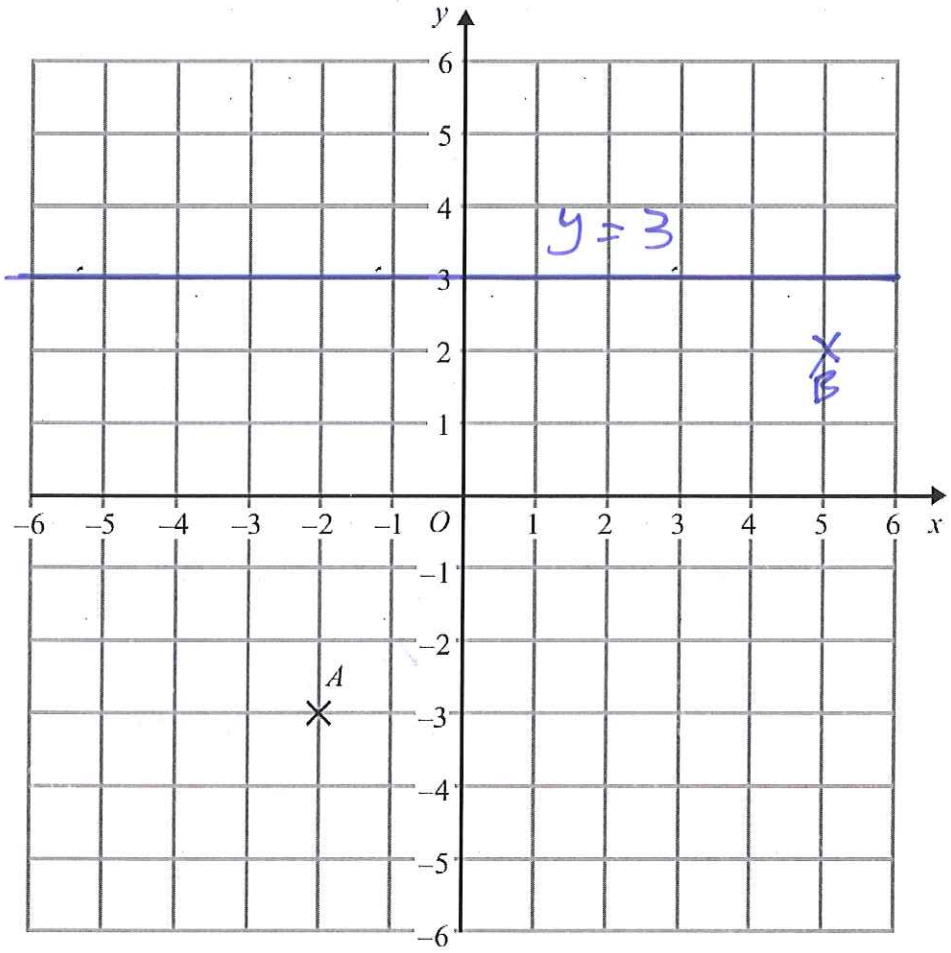
1 − 1/4 = 3/4 = 75%.

75 %

(1)

(Total 3 marks)

11.



(*a*) (i) Write down the coordinates of the point *A*.

(-2, -3)

(ii) On the grid, mark with a cross (×) the point with coordinates (5, 2). Label this point *B*.

(2)

(*b*) On the grid, draw the line with equation $y = 3$.

(1)

(Total 3 marks)

12. Which of these is the largest fraction?

$\frac{7}{10}$ $\frac{3}{5}$ $\frac{29}{40}$

You must show clearly how you got your answer.

$\frac{7}{10} = 0.7 / 70\%$. $\frac{3}{5} = \frac{6}{10} = 0.6$.

$40 \overline{)29.^{29}0^{19}0^{20}0}$ $\frac{00.725}{\ldots} = 0.725 / 72.5\%$.

$\frac{29}{40}$ is the largest fraction.

(Total 3 marks)

13. Here are the ingredients needed to make 12 shortcakes.

Shortcakes
Makes **12** shortcakes
50 g of sugar
200 g of butter
200 g of flour
10 m*l* of milk

Liz makes some shortcakes.
She uses 25 m*l* of milk.

(a) How many shortcakes does Liz make?

$\frac{25}{10} = 2.5$

$2.5 \times 12 = 30$

30

.....

(2)

Robert has
500 g of sugar — $500 \div 50 = 10$ batches
1000 g of butter — 5 batches
1000 g of flour — 5 "
500 m*l* of milk

(b) Work out the greatest number of shortcakes Robert can make.

$\frac{1000}{200} = 5$ batches

$\frac{1000}{200} = 5$ batches

$\frac{500}{10} = 50$ batches

Can make maximum of 5 batches

$\therefore 5 \times 12 = 60$

60

.....

(2)

(Total 4 marks)

14. Ria is going to buy a caravan.
The total cost of the caravan is £7000 **plus** VAT at 20%.

Ria pays a deposit of £3000.
She pays the rest of the total cost in 6 equal monthly payments.

Work out the amount of each monthly payment.

7000
x 1.2
14 000
70.000 +
8400.0

7000 x 1.2 = 8400

8400 − 3000 = 5400

Pay 5400 in 6 equal payments

∴ $\frac{5400}{6}$ = 900

OR

$\frac{7000}{10}$ = 700 = 10%. ∴ 20% = 1400

120% = 7000 + 1400
= 8400

£ 900

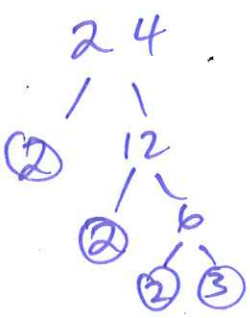
(Total 4 marks)

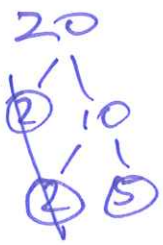
Find LCM of 24 and 20.

15. Buses to Acton leave a bus station every 24 minutes.
Buses to Barton leave the same bus station every 20 minutes.

A bus to Acton and a bus to Barton both leave the bus station at 9 00 am.

When will a bus to Acton and a bus to Barton next leave the bus station at the same time?





LCM = $2^3 \times 3 \times 5$

$= 8 \times 3 \times 5 = 120$

120 mins

= 2 hrs

9 + 2 hrs = 11 am

11 am

(Total 3 marks)

16. The table shows information about the number of grams of protein, of carbohydrate and of fat in 100 grams of regular yoghurt and in 100 grams of low fat yoghurt.

	Protein	Carbohydrate	Fat
Regular	4.7	4.7	3.4
Low Fat	5.9	5.8	0.2

(*a*) Work out the number of grams of protein in 200 g of regular yoghurt.

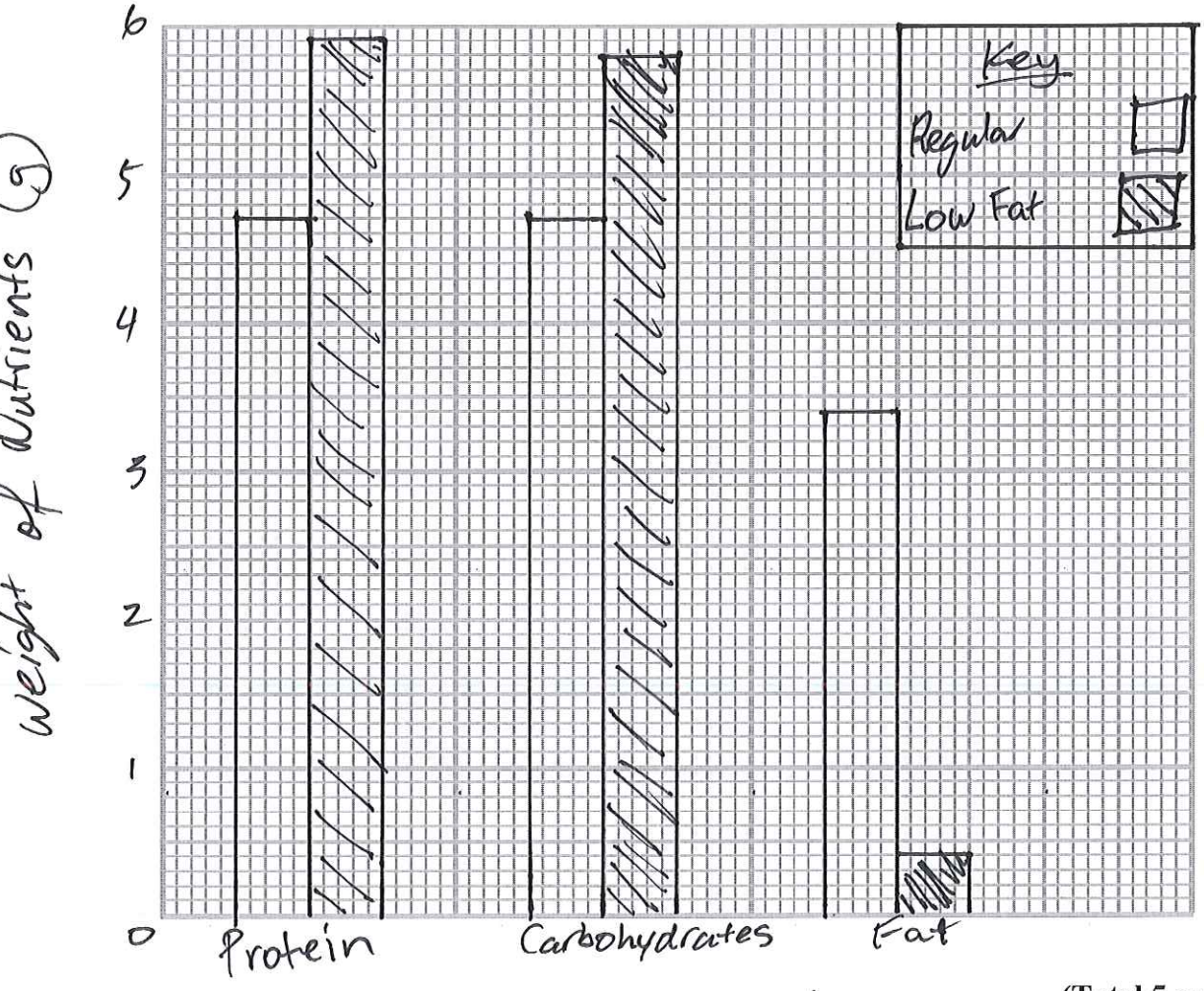
$4.7 \times 2 = 9.4$

9.4 ..... g

(1)

Jamie is going to compare the information in the table.

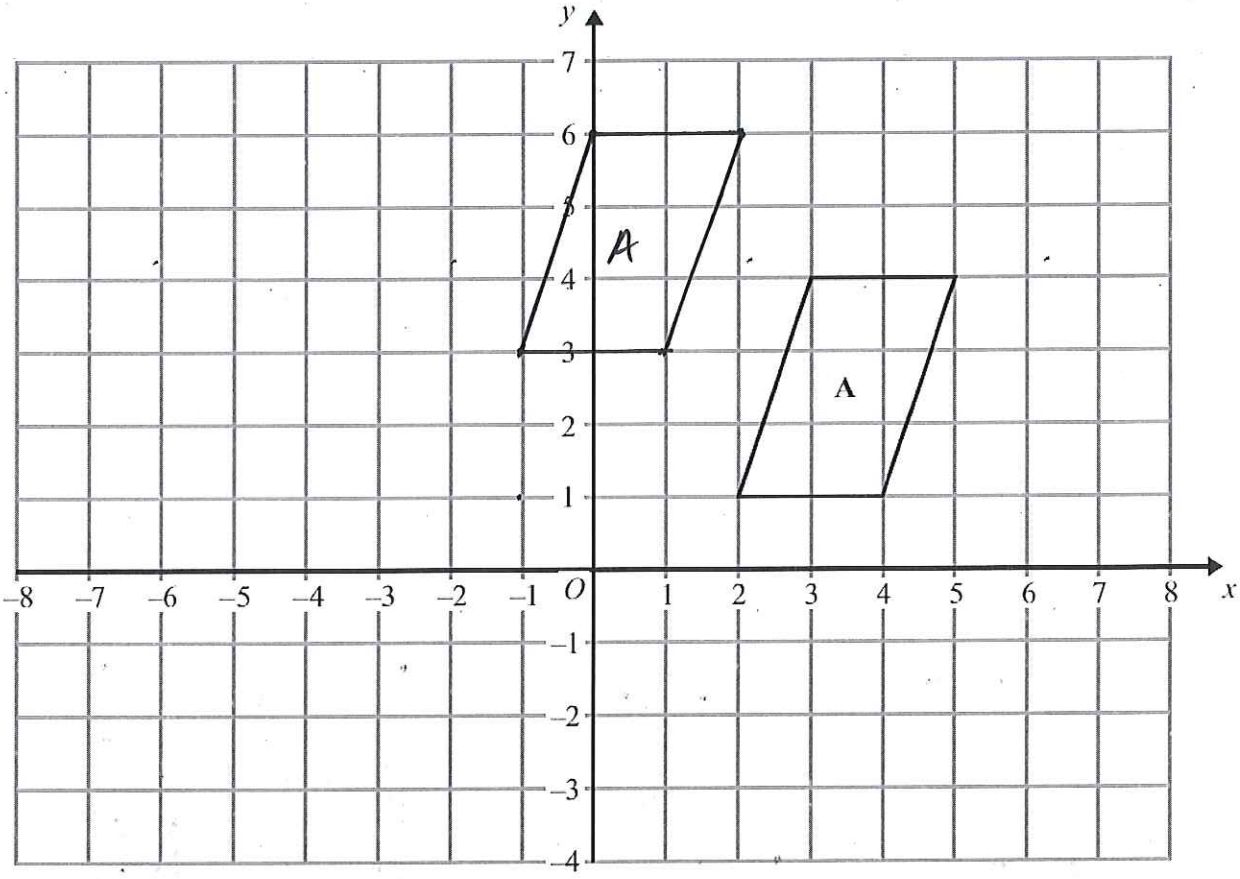
(*b*) On the grid, draw a suitable diagram or chart he could use.



(4)

(Total 5 marks)

17.



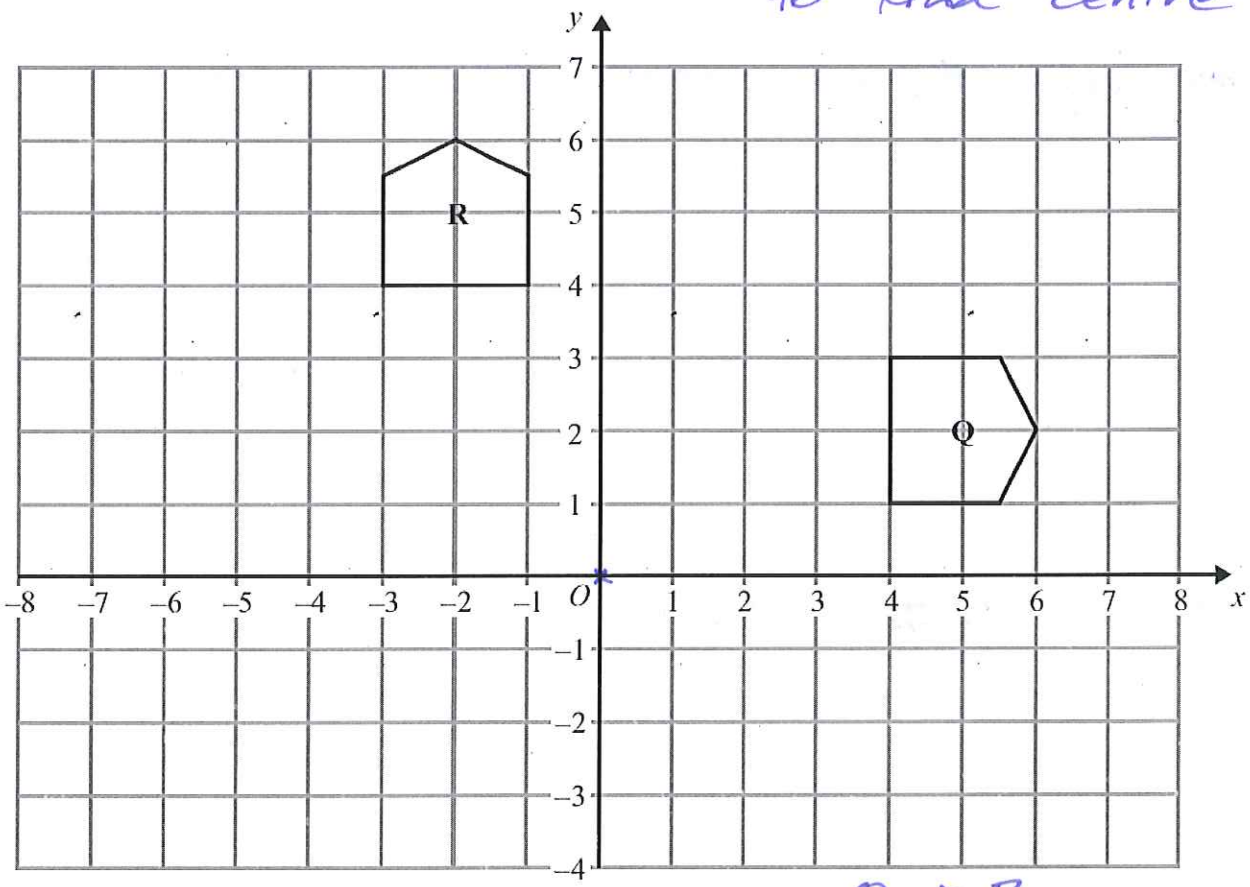
(*a*) Translate shape **A** by the vector $\begin{pmatrix} -3 \\ 2 \end{pmatrix}$ $\begin{matrix} x \\ y \end{matrix}$

(1)

-3 = left 3

2 = up 2.

use tracing paper to find centre.



Q → R

(*b*) Describe fully the single transformation that maps shape **Q** onto shape **R**.

Rotation 90° anticlockwise, centre of Rotation 0, 0.

OR 270° Clockwise.

(3)

(Total 4 marks)

18. (*a*) Write down the value of 10^0.

Any number to the power of 0 = 1.

1

(1)

(*b*) Write down the value of 10^{-2}.

0.01 OR $\frac{1}{100}$

(1)

(*c*) Write these numbers in order of size.
Start with the smallest number.

2.73×10^3 27.3×10^{-3} 273×10^2 0.00273

2730 0.0273 27300

0.00273, 27.3×10^{-3}, 2.73×10^3, 273×10^2

(2)

(Total 4 marks)

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8 total

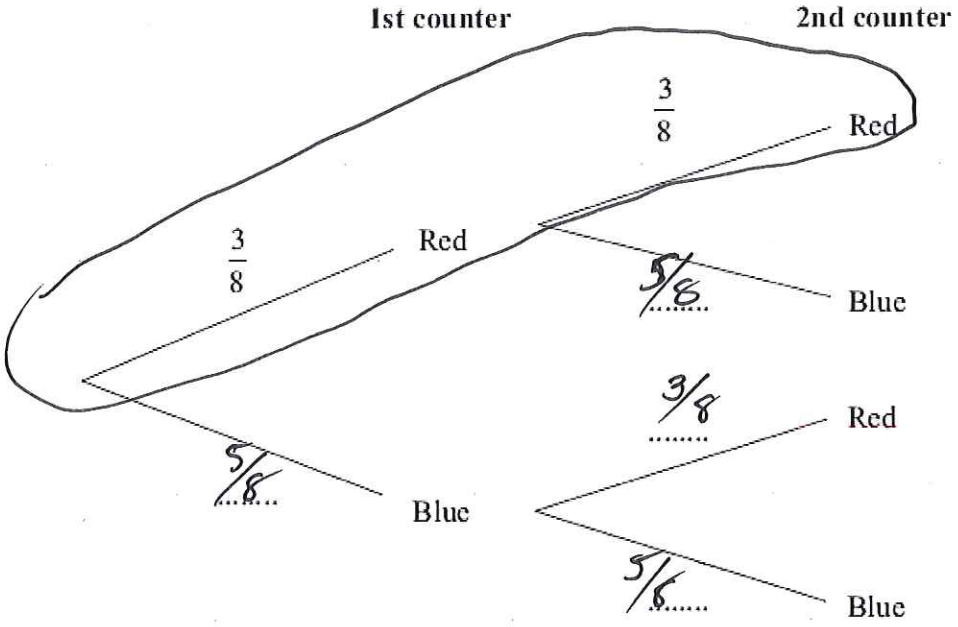
19. Matthew puts 3 red counters and 5 blue counters in a bag.

He takes at random a counter from the bag.

He writes down the colour of the counter.
He puts the counter in the bag again.

He then takes at random a second counter from the bag.

(a) Complete the probability tree diagram.



(2)

(b) Work out the probability that Matthew takes two red counters.

$\frac{3}{8} \times \frac{3}{8} = \frac{9}{64}$

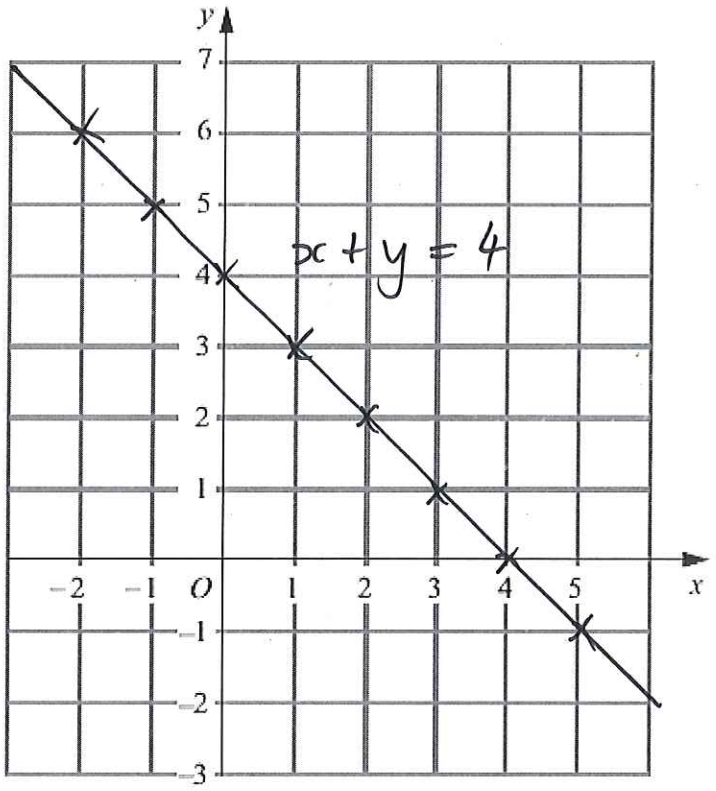
9/64

(2)

(Total 4 marks)

20. On the grid draw the graph of $x + y = 4$ for values of x from -2 to 5

x	-2	-1	0	1	2	3	4	5
y	6	5	4	3	2	1	0	-1



$x + y = 4$

∴ when $x = -2$ y must $= +6$

$x = -1$ y must $= +5$ ...

(Total 3 marks)

21. The diagram shows the plan of a floor.

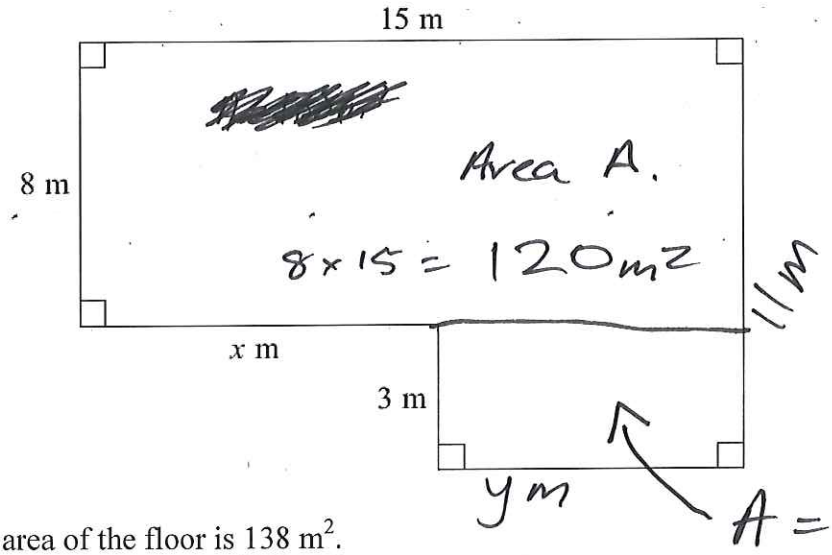


Diagram **NOT** accurately drawn

Area A.

$8 \times 15 = 120 m^2$

$8 + 3 = 11m$

$A = ?$ let this be Area 2.

The area of the floor is 138 m^2.

Work out the value of x.

$8m \times 15m = 120m^2$ - Area A.

Area 2 = Must be $138m^2 - 120m^2 = 18m^2$

$\frac{18m^2}{3} = 6m = y = 6m$

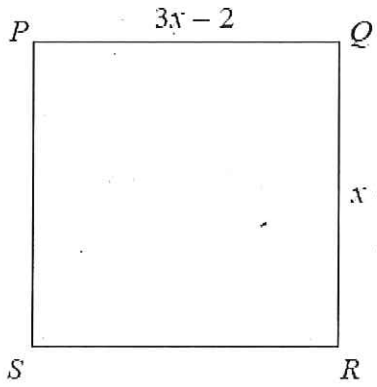
$x = 15m - 6m = 9m$

$x = 9m$

(Total 4 marks)

22. *PQRS* is a square.

All sides of a square are equal.



P = 8 x 4.

All measurements are in centimetres.

Show that the perimeter of the square is 10 cm.

sides of square the same.

$\therefore\ 3x - 2 = x + 1$

$2x - 2 = 1$

$2x = 3$

$x = 1.5$.

Substitute x for 1.5.

$(1.5 + 1) \times 4 = 2.5 \times 4 = 10\text{cm}$.

(OR)

$(3 \times 1.5 - 2) \times 4 = 2.5 \times 4 = 10\text{cm}$

(Total 4 marks)

let Peter be x.

x 3x 6x

23. Peter, Tarish and Ben share £54.

3x x

Tarish gets three times as much money as Peter.

Ben gets twice as much money as Tarish.

6x

How much money does Ben get?

$x + 3x + 6x = 54$

$10x = 54$

$x = 54 \div 10 = £5.40$

Peter = £5.40

Tarish = 5.40 × 3 = £16.20

Ben = 5.40 × 6 = 32.40

32.40

£ .....

(Total 3 marks)

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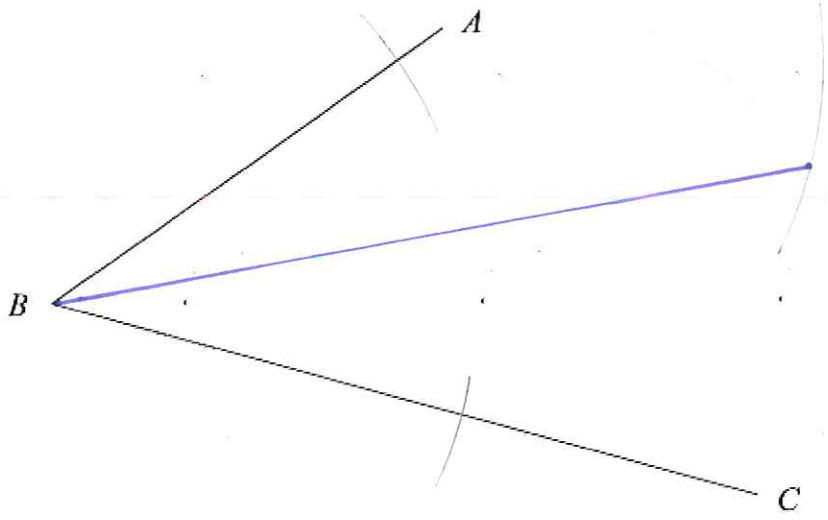
24. Use ruler and compasses to construct the bisector of angle *ABC*.
You must show all your construction lines.



(Total 2 marks)

TOTAL FOR PAPER IS 80 MARKS

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