MS Rev
Q18

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

Rounding

**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.

5 rounds up

25000

**(1)**

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

7 rounds up

24600

**(1)**

**(Total 2 marks)**

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

Timetables

| | | | | | |
|---|---|---|---|---|---|
| **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?

08:30

**(1)**

Another bus leaves Prudhoe at 08 28

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

08:45 - 08:28 = 17 minutes

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?

10:15

**(1)**

**(Total 3 marks)**

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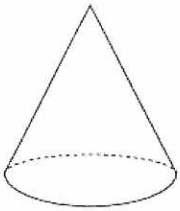
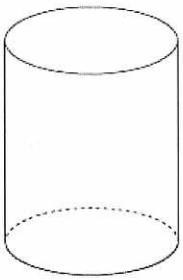
3D Shape Properties

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





(i) Cone (ii) Cylinder

**(Total 2 marks)**

---

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

ordering integers

358 835 709 98 145

98, 145, 358, 709, 835

**(1)**

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

Think of a number (me!)

4 −5 7 −1 −8

−8, −5, −1, 4, 7

**(1)**

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

ordering FDP

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

$= \frac{25}{100}$ $= \frac{20}{100}$ $= \frac{40}{100}$ $= \frac{75}{100}$ $= \frac{50}{100}$

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

**(2)**

**(Total 4 marks)**

---

Simplifying Algebraic Expressions

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

2 lots + 2 lots = 4 lots

4x

.....

**(1)**

(b) Simplify $5y - 2y$

5 lots − 2 lots = 3 lots

3y

.....

**(1)**

(c) Simplify $2 \times 4p$

8p

.....

**(1)**

**(Total 3 marks)**

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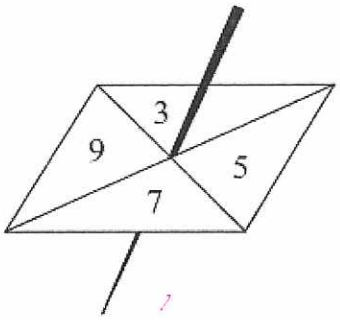
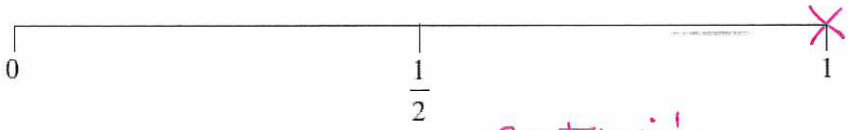
Probability Scale

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



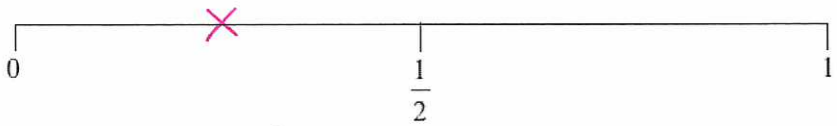

(a) On the probability scale below mark, with a cross (×), the probability that the spinner will land on an odd number.




certain!

**(1)**

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



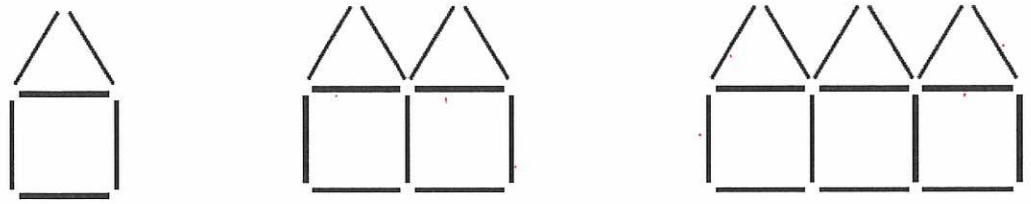

"1 out of 4" = $\frac{1}{4}$

**(1)**

**(Total 2 marks)**

Number Patterns

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

| Pattern | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Sticks | 6 | 11 | 16 | 21 | 26 | 31 | 36 | 41 | 46 | 51 |

+5 +5

Pattern says +5

51

.....

**(Total 3 marks)**

Money Problems

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

| **Ticket prices** |
| --- |
| Adult ticket £12<br>Child ticket £7<br>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.

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

How much change should he get?

Family tickets are good value for money but we still must buy for 1 child and 1 senior.

Family Ticket £30
1 child £ 7 (+)
1 senior £ 8 (+)

Total Price £45

Pays 3 x £20 = £60

Change £60 - £45 = £15

£ 15

**(Total 4 marks)**

Forming and Solving Expressions

**9.** Brian is making a fence.

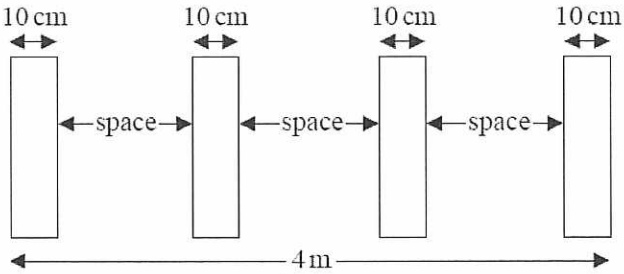



Diagram **NOT** accurately drawn

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.

Total width

Scm = space in cm

collect

(-40)

(÷3)

4m = 400cm (1m = 100cm)

∴ 10cm + 10cm + 10cm + 10cm + Scm + Scm + Scm = 400cm

40cm + 3Scm = 400cm

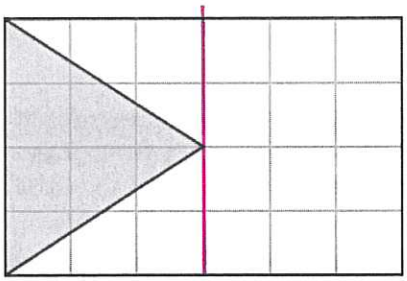
3Scm = 360cm

Scm = 120cm

**(Total 4 marks)**

Area of 2D Shapes

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



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

Colin is right.
Explain why.

Because the triangle is half the left half of the shape. Half of a half is a quarter.

**(2)**

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

Converting f.d.p

Shaded = $\frac{1}{4}$

Not shaded = $\frac{3}{4}$

Convert to % $\frac{3}{4} = 75\%$

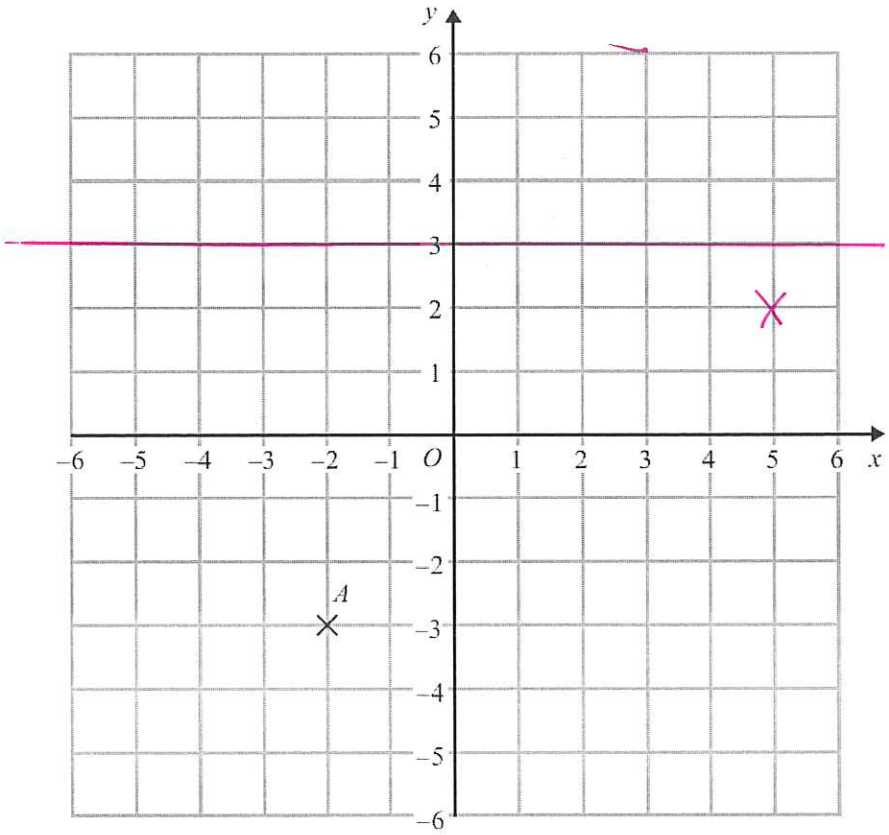
..... %

**(1)**

**(Total 3 marks)**

Coordinates

**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 $y = 3$. Plotting Straight Lines

**(1)**

**(Total 3 marks)**

Ordering Fractions

**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.

Can compare when denominators are the same

∴ Change all denominators to 40:

$\frac{7}{10} \xrightarrow{\times 4} \frac{28}{40}$

$\frac{3}{5} \xrightarrow{\times 8} \frac{24}{40}$

$\frac{29}{40}$ ∴ Largest = $\frac{29}{40}$

**(Total 3 marks)**

Ratio Recipes

**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?

Scale factor | 25 ÷ 10 = 2.5 as many as the recipe says

Shortcakes | 2.5 × 12 =

| × | 10 | 2 |
|---|---|---|
| 2 | 20 | 4 |
| 0.5 | 5 | 1.0 |

6
24 +
30

..... = 30

**(2)**

Robert has
500 g of sugar
1000 g of butter
1000 g of flour
500 m*l* of milk

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

Sugar: 500g ÷ 50g = 10 sets of cakes

Butter: 1000g ÷ 200g = 5 sets of cakes

Cakes: 1000g ÷ 200g = 5 sets of cakes

Milk: 500ml ÷ 10ml = 50 sets of cakes

Conclusion: ∴ 5 sets of cakes maximum...

5 sets: 5 × 12 = 60 shortcakes ..... 60

**(2)**

**(Total 4 marks)**

Percentage of an Amount
Money Problem

**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.

| | |
|---|---|
| 20% of £7000 | 10% = £700 |
| (×2) | 20% = £1400 |
| Total Cost | £7000 + £1400 = £8400 |
| Amount after deposit | £8400 − £3000 = £5400 |
| Monthly payments | £5400 ÷ 6 = £900 |

£ 900

**(Total 4 marks)**

LCM in Context

**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?

12minute 10:00 ∴ 10:12

Acton : 09:24 09:48 ~~09~~:12 ~~09~~:36 11:00

Barton : 09:20 09:40 10:00 10:20 10:40 11:00

∴ 11:00am

11:00am .....

**(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.

Scale factor | 200g ÷ 100g = 2

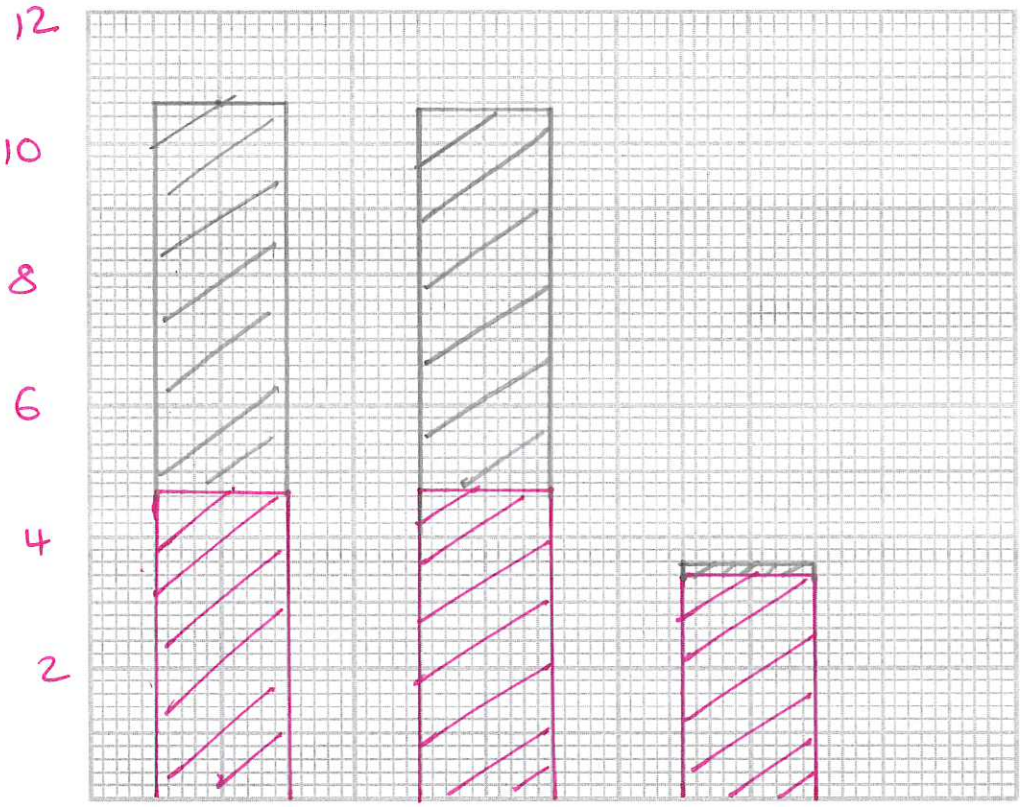
4.7 × 2 = 9.4 | 2 × 4.7 = 9.4

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.



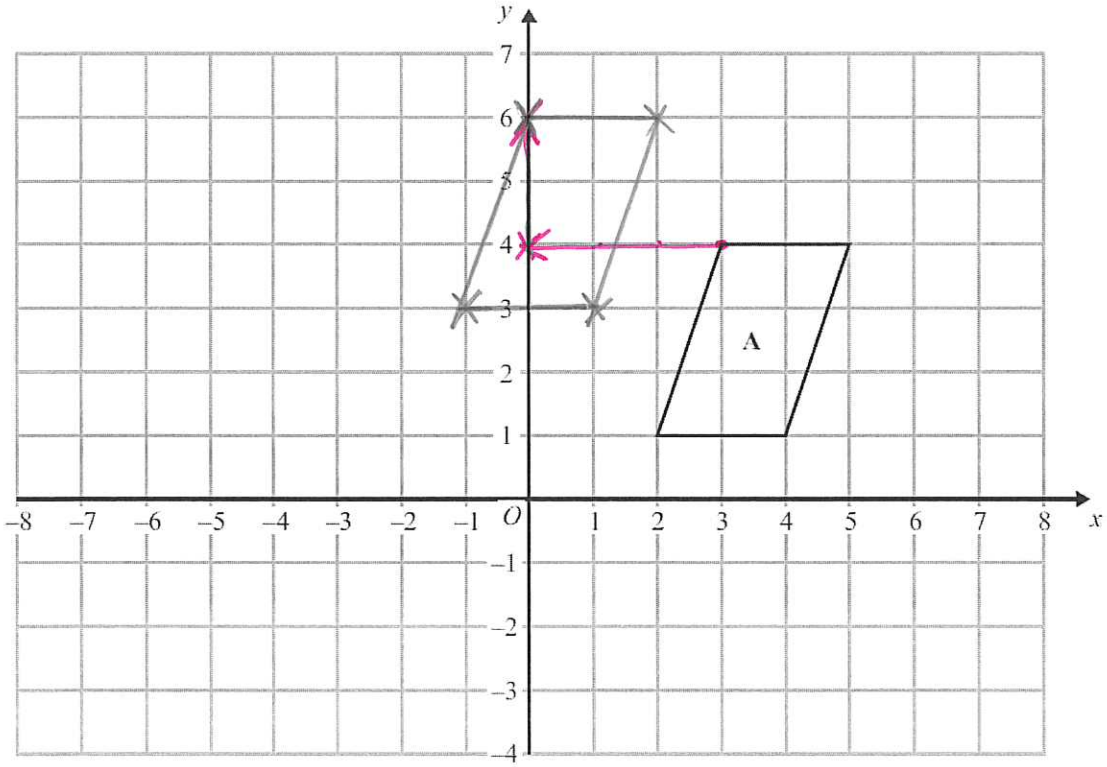

**(4)**

**(Total 5 marks)**

* Line graph with key would also have been OK!

Transformations

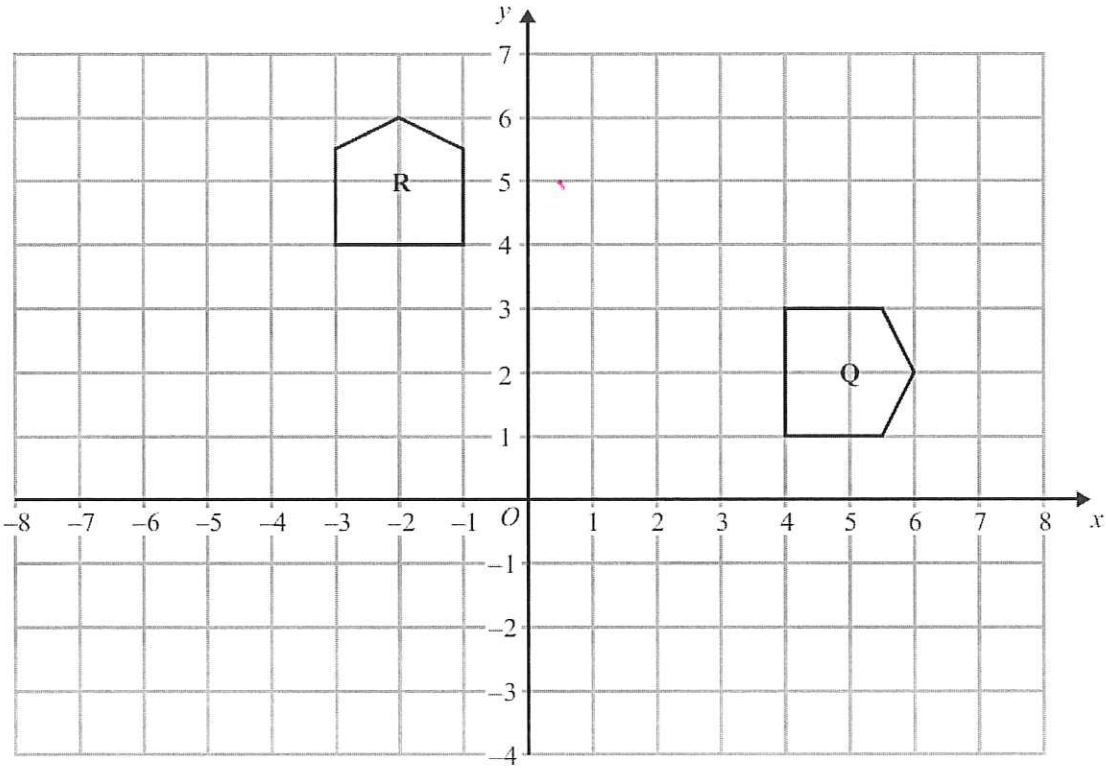
**17.**




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

3 left
2 up

**(1)**




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

Rotation 90° anti-clockwise about centre (0,0)

.....

.....

.....

.....

**(3)**

**(Total 4 marks)**

Index Laws

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

$a^0 = 1 \quad \therefore 10^0 = 1$

1

**(1)**

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

$a^{-m} = \frac{1}{a^m} \qquad 10^{-2} = \frac{1}{10^2} = \frac{1}{100}$

**(1)**

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

$2.73 \times 10^3$ $27.3 \times 10^{-3}$ $273 \times 10^2$ 0.00273

2730 0.0273 27300 0.00273

(3) (2) (4) (1)

0.00273, 0.0273, 2730, 27300

**(2)**

**(Total 4 marks)**

Independent Probability Trees

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

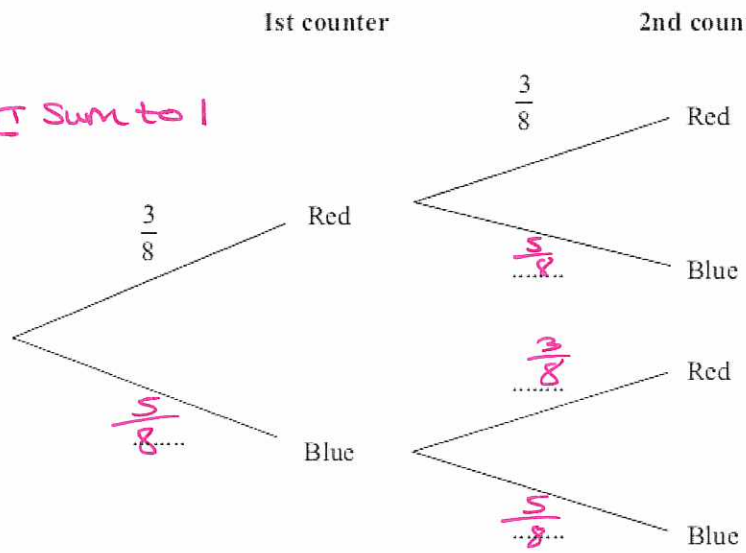
He takes at random a counter from the bag.

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.

Branches MUST sum to 1




**(2)**

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

$P(R,R) = \frac{3}{8} \times \frac{3}{8} = \frac{9}{64}$

$\frac{9}{64}$

.....

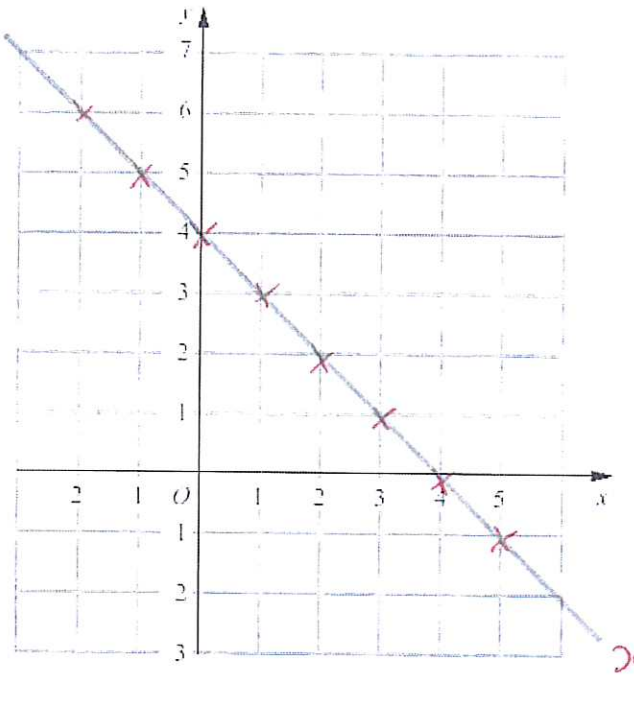
**(2)**

**(Total 4 marks)**

Plotting Straight Lines

**3.** 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 |




**(Total 3 marks)**

Compound Shapes

**5.** The diagram shows the plan of a floor.

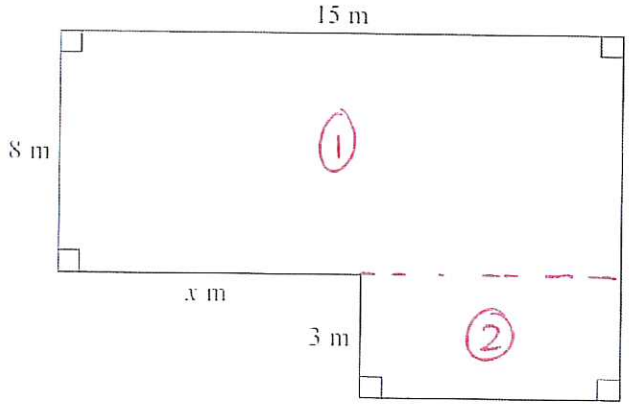



Diagram **NOT** accurately drawn

The area of the floor is 138 $m^2$.

Work out the value of $x$.

Area ① = L × W — $A = 15m \times 8m = 120m^2$

Area ② = L × W — $A = 3m \times (15-x)$

expand — $= 3(15-x)$

$= 45-3x$

Total Area = ① + ② — $Total = 120 + 45 - 3x$

$Total = 165 - 3x$

Total = 138 $m^2$ — $138 = 165 - 3x$

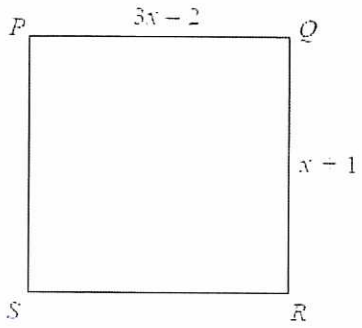
(+3x) — $3x + 138 = 165$

(−138) — $3x = 27$

$x = 9m$

**(Total 4 marks)**

4. *PQRS* is a square.




All measurements are in centimetres.

Show that the perimeter of the square is 10 cm.

Square has equal sides: $3x-2 = x+1$

$(-x)$: $2x-2 = 1$

$(+2)$: $2x = 3$

$(\div 2)$: $x = 3/2$

Each side length: $x+1 = \frac{3}{2}+1 = \frac{5}{2} = 2.5\text{cm}$

Perimeter = 4 x length: $P = 4 \times 2.5\text{cm}$

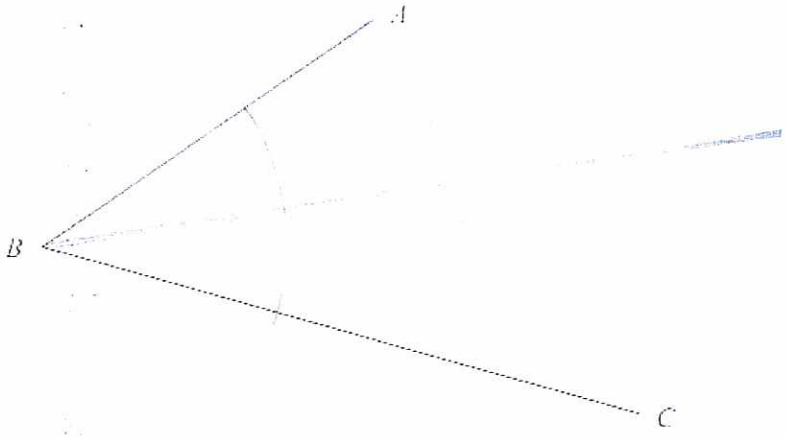
$P = 10\text{cm}$ □

**(Total 4 marks)**

Loci and Constructions

**Answer ALL questions.**
**Write your answers in the spaces provided.**
**You must write down all the stages in your working.**

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




**(Total 2 marks)**

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2. Peter, Tarish and Ben share £54.

Forming and Solving Equations

Tarish gets three times as much money as Peter.
Ben gets twice as much money as Tarish.

How much money does Ben get?

Tarish = 3x
Peter = x
Ben = 6x
(÷10)
(×6)

$x + 3x + 6x = 54$

$10x = 54$

$x = £5.40$

$6x = £32.40$

5.40 × 6 = 32.40

£ 32.40

**(Total 3 marks)**

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