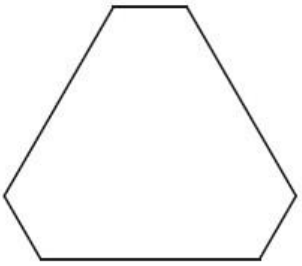
GCSE Mathematics - Paper 1 (Foundation tier)

J560/01 Paper 1 Mathematics (Foundation tier)

Question Set 1

1 (a) Write down the mathematical name of this polygon.

6 sides = hexagon



(a) hexagon [1]

(b) Write down the order of rotation symmetry of the polygon.

(b) 3 [1]

2 Complete this table of fractions, decimals and percentages.

Fraction		Decimal		Percentage
$\frac{1}{4}$	=	0.25	=	25%
$\frac{7}{100}$	=	0.07	=	7.1%
$\frac{13}{10}$	=	1.3	=	130%

[3]

3 Lev (L), Maria (M) and Nicholas (N) sit in a row of three seats.

(a) Use the table to list all the different orders in which they could sit.
One possible order is already shown in the table.
You may not need to use all the rows in the table.

1 ÷ 6 = 1/6

Seat 1	Seat 2	Seat 3	
L	M	N	1/6
L	N	M	1/6
M	N	L	1/6
M	L	N	1/6
N	L	M	1/6
N	M	L	1/6

[2]

(b) All possible orders in which they could sit are equally likely.

What is the probability that Lev (L) sits next to Maria (M)?

4 times
4 × 1/6 = 2/3

(b) 2/3 ..... [1]

4

(a) Multiply out.

$4(3x + 2)$ → $12x + 8$

(a) $12x + 8$ ..... [1]

(b) Factorise.

$3c - 6d$

common factor is 3
3(c − 2d)

(b) $3(c - 2d)$ ..... [1]

5 Kim is paid £9.40 per hour for the first 35 hours she works each week.
After 35 hours she is paid at one and a quarter times the hourly rate.

One week Kim works 42 hours.

Calculate how much she is paid for that week.

42 − 35 = 7 extra hours

First 35 hours × €9.40 = €329.00

7 extra hours × (€9.40 × 1.25) = €82.25

329 + 82.25 = €411.25

£ 411.25 [6]

6 Mike drinks $\frac{2}{5}$ of a litre of juice each day.
Juice costs £4.40 for a 2 litre carton and £2.60 for a 1 litre carton.

Mike buys enough juice to last for 7 days.

What is the lowest price Mike can pay for this juice?
Show how you decide.

$7 \times \frac{2}{5} = \frac{14}{5} = 2.8$ litres for 7 days total

He is going to have to buy 3 litres minimum.

Mikes options → 2 × 2 litre = 2 × 4.40 = 8.80

→ 3 × 1 litre = 3 × 2.60 = 7.80

→ (1 × 1 litre) + (1 × 2 litre) = 7.00

£ 7.00 [4]

7 Calculate the area of a circle with radius 14 cm.

$\pi r^2 \rightarrow \pi(14)^2 = 196\pi \text{ cm}^2$

196π cm² [2]

8 (a) (i) Round 356 to the nearest ten.

(a)(i) 360 [1]

(ii) Round 356.052 to 1 decimal place.

(ii) 356.1 [1]

(b) Find the value of y in each of the following.

(i) $3 \times 3 \times 3 \times 3 = 3^y$

4

(b)(i) $y =$ 4 [1]

(ii) $6^3 \times 6^5 = 6^y$

$3 + 5 = 8$

(ii) $y =$ 8 [1]

9 (a) Anne, Barry and Colin share a prize in the ratio 3 : 4 : 5.
Colin gives $\frac{1}{3}$ of his share to a charity.

What fraction of the whole prize does Colin give to the charity?

A : B : C
3 : 4 : 5

3 + 4 + 5 = 12 total parts

Colins share is 5/12 and he gives $\frac{1}{3}$ away

so $5/12 \times 1/3 = 5/36$

5/36

(a) ..... [3]

(b) Delia, Edwin and Freya share some money in the ratio 5 : 7 : 8.
Freya's share is £1600.

How much money did they share?

D : E : F
5 : 7 : 8

8 + 7 + 5 = 20 parts

8 parts = 1600

1 part = $\frac{1600}{8}$

= 200

200 × 20 = 4000

4000

(b) £ ..... [2]

10 Luke is an office receptionist.
Each day, for 60 days, he records the number of people visiting the office.

Number of people, (n)	Frequency	midpoint	$f \times m$
$0 \leqslant n \leqslant 5$	20	2.5	50
$5 < n \leqslant 10$	14	7.5	105
$10 < n \leqslant 20$	11	15	165
$20 < n \leqslant 40$	15	30	450
	60		770

(a) Calculate an estimate of the mean number of people visiting the office.

$\frac{770}{60} = 12.8\dot{3} = 13$

(a) 13 **[4]**

(b) Luke says the range is 40.

Explain why he may be wrong.

Range can be 15 if you take highest number in first range (5) and the lowest number from highest range (21). $20 - 5 = 15$ **[1]**

11 A bus timetable shows the following information.

- A bus following route T leaves for the train station every 20 minutes.
- A bus following route A leaves for the airport every 18 minutes.
- A bus following route T and a bus following route A both leave at 8.37 am.

(a) When is the next time one of each bus is timetabled to leave at the same time?

Find LCM

18 → 2, 9 → 3, 3

20 → 2, 10 → 2, 5

2 = HCF

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

$= 180$

50 in 180 minutes

= 3 hours

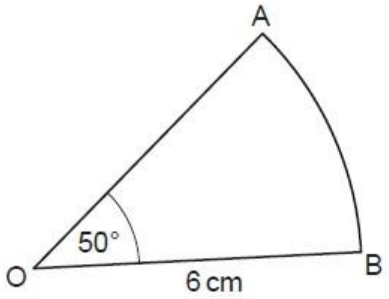
(a) 11:37 **[4]**

(b) Write down one assumption that was necessary to solve this problem.

The buses always left on time. No delays.

[1]

12 AOB is a sector of a circle, centre O.



Not to scale

Show that the length of arc AB is 5.24 cm, correct to 3 significant figures. **[3]**

$\frac{50}{360} \times \pi \times 12 = 5.23598$

$= 5.24$

13 Bennie is 7 years older than Ayesha.
Chloe is twice as old as Bennie.
The sum of their three ages is 57.

Work out the ages of Ayesha, Bennie and Chloe.

$B = 7 + A$

$C = 2B$

So $A = B - 7$

$A + B + C = 57$

↳ write in terms of B

$(B-7) + B + (2B) = 57$

$4B - 7 = 57 \rightarrow 4B = 64 \rightarrow B = 16$

$A = 16 - 7 = 9$

$C = 2 \times 16 = 32$

Ayesha = 9 Chloe = 32

Bennie = 16

Ayesha's age is 9

Bennie's age is 16

Chloe's age is 32 **[6]**

Total Marks for Question Set 1: 50