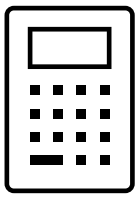
Surname:	Forename(s):

GCSE Mathematics – Foundation Tier

Paper 2 – Calculator



Practice Set B

/40

Materials

- **Formulae Sheet** (on the next page)
- **Black** ink or ball-point pen
- Pencil
- Eraser
- Protractor
- Compass
- Tracing Paper
- **Calculator allowed**

Instructions

- Time allowed: **45 minutes.**
- The total mark for this paper is **40**.
- Show **all** of your working.
- Draw diagrams in pencil.
- Plot graphs in pencil.
- Diagrams are **not** accurately drawn, unless otherwise indicated.
- Cross through any work you don't want to be marked

Foundation Tier Formulae Sheet

Perimeter, Area and Volume

Where *a* and *b* are the lengths of the parallel sides and *h* Is their perpendicular separation:

Area of a trapezium = ½ (a + b) h

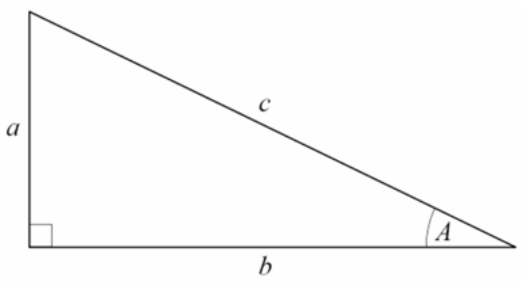
Volume of a prism = area of cross section x length

Where *r* is the radius and *d* is the diameter:

Circumference of a circle = 2πr = πd

Area of a circle = πr^2

Pythagoras' Theorem and Trigonometry



In any right-angled triangle where a, b and c are the length of the sides and c is the hypotenuse:

$$a^2 + b^2 = c^2$$

In any right-angled triangle ABC where a, b and c are the length of the sides and c is the hypotenuse:

$$\sin A = \frac{a}{c} \qquad \cos A = \frac{b}{c} \qquad \tan A = \frac{a}{b}$$

Compound Interest

Where *P* is the principal amount, *r* is the interest rate over a given period and *n* is number of times that the interest is compounded:

$$\text{Total accrued} = P\left(1 + \frac{r}{100}\right)^n$$

Probability

Where P (*A*) is the probability of outcome *A*

and P (*B*) is the probability of outcome *B*:

P (*A* or *B*) = P (*A*) + P (*B*) – P (*A* and *B*)

P (*A* and *B*) = P (*A* given *B*) P(*B*)

1 Write 142,436 correct to the nearest 1000

_____

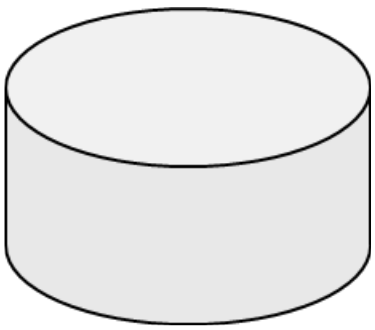
(Total for question 1 is 1 mark)

2 Work out $\frac{1}{6}$ of 612

_____

(Total for question 2 is 1 mark)

3 What is the name of this shape?

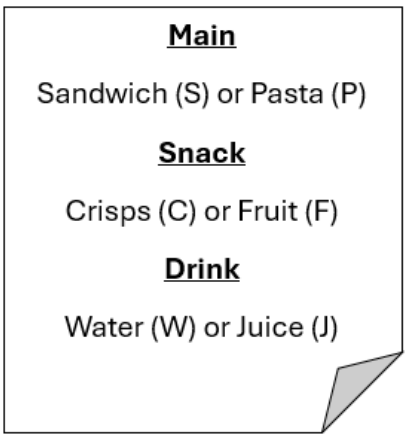


_____

(Total for question 3 is 1 mark)

4 In a meal deal you can choose a main, a side, and a drink.

(a) List all of the possible combinations of the meal deal items that you could choose.



_____

_____

_____

(2)

(b) What is the probability that someone choses a combination with both pasta and fruit.

_____

(1)

(Total for question 4 is 3 marks)

5 Write the ratio 90 : 105 : 15 in its simplest form.

_____

(Total for question 5 is 2 marks)

6 The cost of a swim club membership is £12 per month for the first 3 months.

After 3 months, the price reduces to £9 per month for the rest of the year.

(a) Work out the total cost for the membership for a full year.

£ _____

(2)

(b) Kimberly trains in the pool 3 times a week. Each lap of the pool is 50 metres

On Mondays, she swims 20 laps.

On Wednesday, she swims 24 laps.

On Fridays, she swims a distance of 1.5km.

Given that she never misses a session, work out the total distance that Kimberly will swim throughout the entire year. Give your answer in kilometres (km).

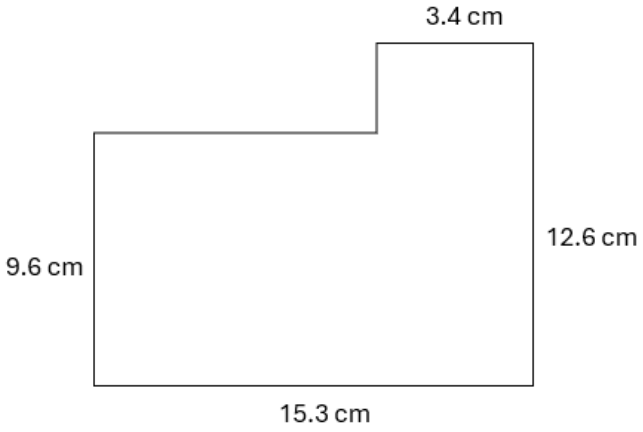
_____ km

(4)

(Total for question 6 is 6 marks)

7 Here is a shape made from rectangles.

Work out the area of this shape.



_____ cm^2

(Total for question 7 is 3 marks)

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8 (a) Write 35,000,000 in standard form.

_____

(1)

(b) Write 6×10^{-5} as an ordinary number.

_____

(1)

(Total for question 8 is 2 marks)

9 The table shows the number of pets that 200 people have in their homes.

Nobody in this group had more than 5 pets.

Number Pets	Frequency
0	27
1	42
2	68
3	53
4	10
5	0

(a) Write down the modal number of pets?

_____

(1)

(b) Calculate an estimate for the mean number of pets in someone's home.

Give your answer to 2 decimal places.

_____

(3)

(Total for question 9 is 4 marks)

10 (a) Simplify $w^2 \times w^7$

_____

(1)

(b) Simplify $(2t^2v)^3$

_____

(2)

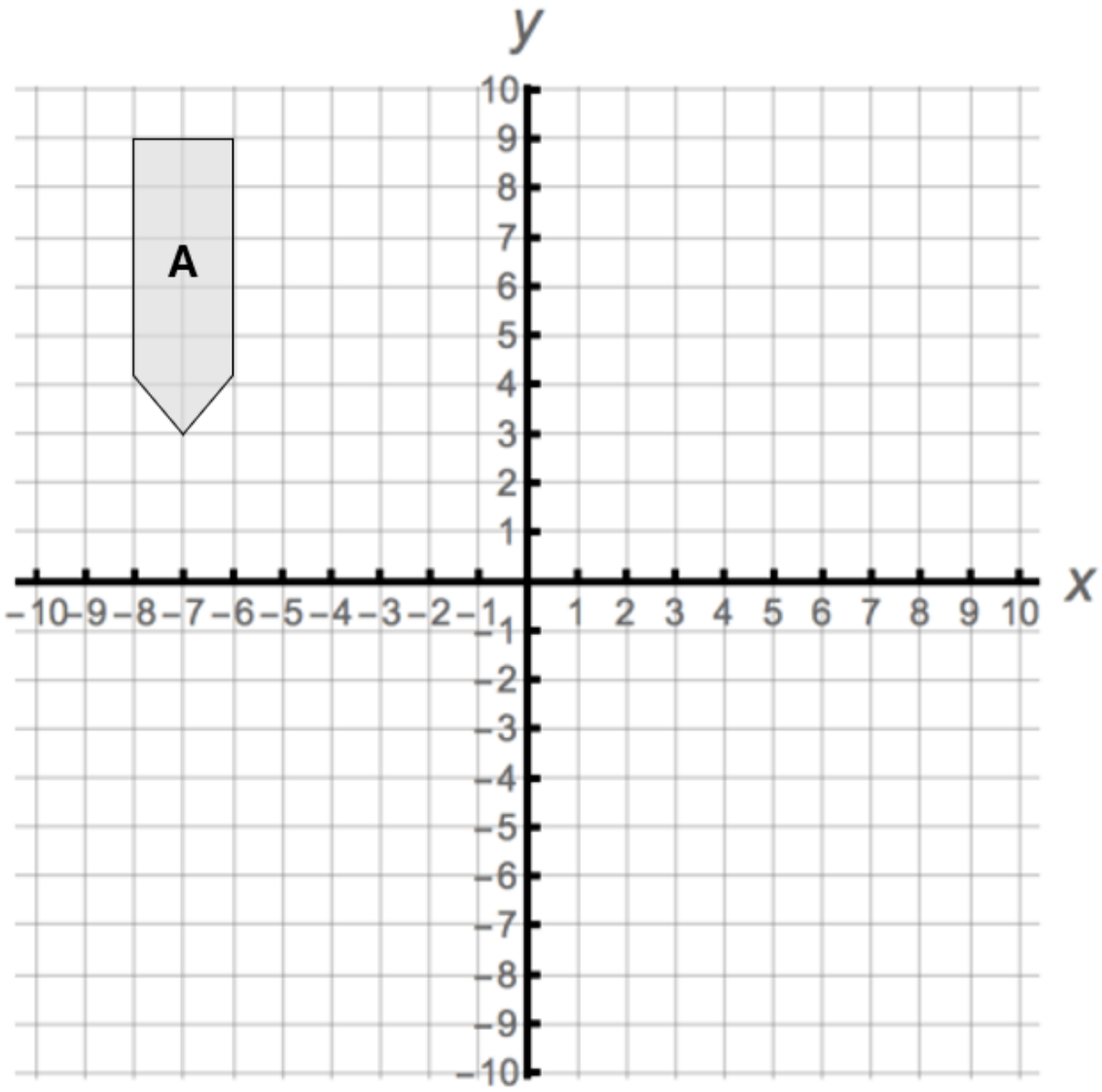
(c) Simplify $\frac{12x^6y^2}{3x^2y}$

_____

(2)

(Total for question 10 is 5 marks)

11



(a) Reflect Shape A in the line x = -1
Label this as Shape B

(2)

(b) Translate Shape A by the vector $\begin{pmatrix} 3 \\ -1 \end{pmatrix}$
Label this as Shape C

(1)

(Total for question 11 is 3 marks)

12 Benji hires a carpet cleaner

The cost per day is £16.80 for the first 3 days.
On day 4, the cost is reduced by 15%.
From day 4 onwards, the cost is the same as it is on day 4.

The total cost of hiring the carpet cleaner came to £178.92

How many days did Benji hire the carpet cleaner for?
You must show your working.

_____ days

(Total for question 12 is 5 marks)

13 Fred, Greta and Hugo share some money in the ratio 2 : 5 : 3

Greta has £135

Greta gives some of her share to Fred.

Hugo also gives some of his share to Fred.

The money that Fred, Greta and Hugo have now is in the ratio 5 : 6 : 4

How much money did Fred receive in total from Greta and Hugo?

£ _____

(Total for question 13 is 4 marks)

END OF TEST

TOTAL FOR THIS PAPER IS 40 MARKS