4024 Mathematics Paper 1 - Number

Topical questions | 51 questions

1. Question | 4024 May-June 2025 P1 V2 Q1

1 Work out.

(a) $6 - 2 \times (-4)$

..... [1]

(b) 80×0.2

..... [1]

(c) $\frac{2}{9} \div \frac{5}{6}$

..... [2]

2. Question | 4024 May-June 2025 P1 V2 Q7

7 Evaluate.

(a) $\sqrt[3]{125}$

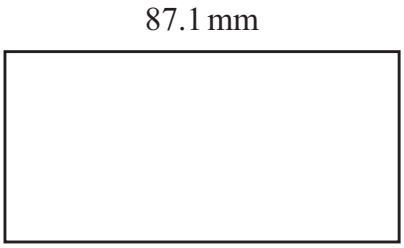
..... [1]

(b) 4^{-2}

..... [2]

3. Question | 4024 May-June 2025 P1 V2 Q9

9 The diagram shows a rectangle.



NOT TO SCALE

By writing each number correct to 1 significant figure, find an estimate for the area of the rectangle.

..... mm^2 [2]

4. Question | 4024 May-June 2025 P1 V2 Q10

10 **(a)** Write 228 as a product of its prime factors.

..... [2]

(b) $228^2 = 51984$

Write 51 984 as a product of its prime factors.

..... [1]

5. Question | 4024 May-June 2025 P1 V2 Q13

13 In a sale, a shop reduces all prices by 20%.

(a) A coat costs $85 before the sale.

Work out the sale price of the coat.

$ ..... [2]

(b) The sale price of a shirt is $40.

Work out the cost of the shirt before the sale.

$ ..... [2]

6. Question | 4024 May-June 2025 P1 V2 Q15

15 **(a)** Simplify.

$$\sqrt{175} - \sqrt{28}$$

..... [2]

(b) Rationalise the denominator.

$$\frac{1}{\sqrt{5}}$$

..... [1]

7. Question | 4024 May-June 2025 P1 V2 Q20

20 Work out.

$$0.\dot{1}\dot{7} + \frac{5}{9}$$

Give your answer as a fraction in its simplest form.

..... [4]

8. Question | 4024 May-June 2025 P1 V3 Q1

1 **(a)** Write 0.07 as a fraction.

..... [1]

(b) Write $\frac{16}{25}$ as a decimal.

..... [1]

9. Question | 4024 May-June 2025 P1 V3 Q5

5 Write down

(a) the reciprocal of 7

..... [1]

(b) an irrational number.

..... [1]

10. Question | 4024 May-June 2025 P1 V3 Q7

7 Asif is making a rectangular lawn 14 m by 19 m.
He uses grass seed to make the lawn.
The grass seed costs \$0.34 for 1 m^2.

By writing each number correct to 1 significant figure, estimate the cost of seed needed.

\$ ..... [3]

11. Question | 4024 May-June 2025 P1 V3 Q9

9 Work out.

(a) $8 \div 0.1$

..... [1]

(b) $\frac{4}{5} - \frac{1}{2} \times \frac{3}{4}$

..... [3]

12. Question | 4024 May-June 2025 P1 V3 Q11

11 A green light flashes every 12 minutes.
A red light flashes every 45 minutes.
The two lights flash together at 9 am.

Find the next time when the two lights will flash together.

..... [3]

13. Question | 4024 May-June 2025 P1 V3 Q15

15 **(a)** Work out 70% of 120.

..... [2]

(b) Find 8 as a percentage of 25.

.....% [1]

(c) In a sale, the original price of a jacket is reduced by 12%.
The sale price of the jacket is $66.

Calculate the original price of the jacket.

$ ..... [2]

14. Question | 4024 May-June 2025 P1 V3 Q25

25 **(a)** Simplify.

$$\sqrt{300} - \sqrt{48}$$

..... [2]

(b) Rationalise the denominator.
Give your answer in its simplest form.

$$\frac{6}{\sqrt{7}+2}$$

..... [3]

15. Question | 4024 Oct-Nov 2025 P1 V1 Q1

1 Write down the reciprocal of $\frac{7}{2}$.

..... [1]

16. Question | 4024 Oct-Nov 2025 P1 V1 Q3

3 A shirt costs \$24.
In a sale the cost is reduced by 15%.

Work out the cost of the shirt in the sale.

\$ ..... [2]

17. Question | 4024 Oct-Nov 2025 P1 V1 Q6

6 Sam buys some chocolate.

He eats $\frac{2}{7}$ of the chocolate.

The mass of the **remaining** chocolate is 350 g.

Work out the mass of the chocolate Sam buys.

..... g [2]

18. Question | 4024 Oct-Nov 2025 P1 V1 Q9

9 By writing each number correct to 1 significant figure, work out an estimate for the value of

$$\frac{\sqrt{102.5} \times 8.7}{27}.$$

..... [2]

19. Question | 4024 Oct-Nov 2025 P1 V1 Q13

13 Work out $2\frac{2}{3}+3\frac{3}{4}$.

Give your answer as a mixed number in its simplest form.

..... [3]

20. Question | 4024 Oct-Nov 2025 P1 V1 Q18

18 Write $0.1\dot{4}$ as a fraction.

..... [2]

21. Question | 4024 Oct-Nov 2025 P1 V1 Q21

21 **(a)** Evaluate.

$$27^{-\frac{2}{3}}$$

..... [2]

(b) Simplify.

$$\left(\frac{1}{100}x^{100}\right)^{\frac{1}{2}}$$

..... [2]

22. Question | 4024 Oct-Nov 2025 P1 V1 Q23

23 **(a)** Simplify.

$$\sqrt{8} \times \sqrt{6} + \sqrt{3}$$

..... [2]

(b) Rationalise the denominator and simplify.

$$\frac{3}{2 - \sqrt{5}}$$

..... [3]

23. Question | 4024 Oct-Nov 2025 P1 V2 Q2

2 Work out.

(a) $0.78 - 0.2$

..... [1]

(b) -8×-5

..... [1]

24. Question | 4024 Oct-Nov 2025 P1 V2 Q4

4 Petra thinks of a number.
The number is a multiple of 7.

Petra says:

> When I write my number correct to the nearest ten it is 30.

Find the number that Petra thinks of.

..... [2]

25. Question | 4024 Oct-Nov 2025 P1 V2 Q5

5 Write these numbers in order of size, starting with the smallest.

0.8 $\quad \frac{7}{9} \quad$ $\frac{17}{20}$ $\quad 84.5\%$

..... , ... , ... , ... [2]

smallest

26. Question | 4024 Oct-Nov 2025 P1 V2 Q9

9 **(a)** Sara has a bag containing 60 red counters, 72 blue counters and 36 green counters.

Find the ratio of red counters : blue counters : green counters in the bag.
Write the ratio in its simplest form.

..... : ..... : ..... [2]

(b) Sunil has a bag containing yellow counters and white counters.
The ratio of yellow counters to white counters is 5 : 8.
There are 18 more white counters than yellow counters.

Work out the number of yellow counters and the number of white counters.

Yellow counters = ...

White counters = ...

[3]

27. Question | 4024 Oct-Nov 2025 P1 V2 Q10

10 Work out.

$$1\frac{2}{5} \div \frac{3}{10}$$

Give your answer as a mixed number in its simplest form.

..... [3]

28. Question | 4024 Oct-Nov 2025 P1 V2 Q13

13 Thomas works in a shop.
He is paid $12 for each hour he works.
He is also paid a bonus of 5% of the value of the items he sells.

One day, Thomas works for 5 hours.
He is paid a total of $82 including his bonus.

Work out the value of the items Thomas sells on this day.

$ ..... [4]

29. Question | 4024 Oct-Nov 2025 P1 V2 Q16

16 **(a)** Expand and simplify.

$$\left(3+\sqrt{2}\right)\left(1+4\sqrt{2}\right)$$

..... [2]

(b) Rationalise the denominator.

$$\frac{1}{1+\sqrt{7}}$$

..... [2]

30. Question | 4024 Oct-Nov 2025 P1 V2 Q19

19 **(a)** Evaluate $16^{-\frac{3}{4}}$.

..... [2]

(b) Write $9^2 \times 3^{-\frac{1}{2}}$ as a single power of 3.

..... [2]

31. Question | 4024 Specimen 2025 P1 Q1

1 Write 2.704 86 correct to 3 decimal places.

..... [1]

32. Question | 4024 Specimen 2025 P1 Q5

5 Write down the reciprocal of 9.

..... [1]

33. Question | 4024 Specimen 2025 P1 Q6

6 Work out.

(a) 0.2×0.4

..... [1]

(b) $\frac{1}{3} + \frac{2}{3} \div \frac{7}{6}$

..... [3]

34. Question | 4024 Specimen 2025 P1 Q13

13 Write $0.2\dot{3}$ as a fraction in its simplest form.

..... [3]

35. Question | 4024 Specimen 2025 P1 Q15

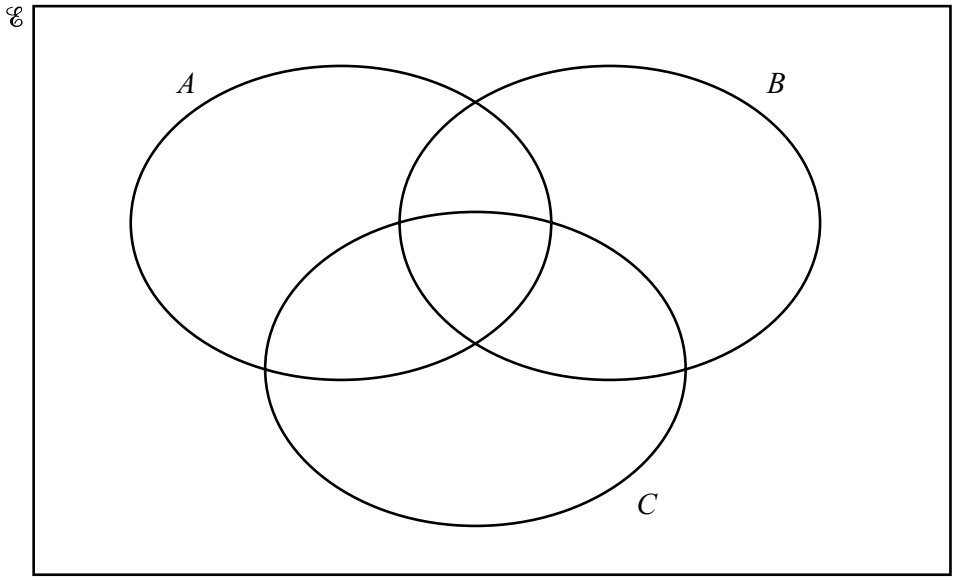
15 Write $25^{-\frac{3}{2}}$ as a fraction in its simplest form.

..... [2]

36. Question | 4024 Specimen 2025 P1 Q16

16 $\mathscr{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$
$A = \{x : 6 \leqslant x \leqslant 10\}$
$B = \{x: x \text{ is a factor of } 18\}$
$C = \{x: x \text{ is a square number}\}$

(a) Complete the Venn diagram.



[3]

(b) Find $n(A \cap C \cap B')$.

..... [1]

37. Question | 4024 Specimen 2025 P1 Q24

24 **(a)** Simplify.

$$\sqrt{75} + \sqrt{27}$$

..... [2]

(b) Rationalise the denominator.

$$\frac{3}{2 + \sqrt{5}}$$

Give your answer in its simplest form.

..... [3]

38. Question | 4024 May-June 2026 P1 V2 Q1

1 Write down the value of

(a) 5^3

..... [1]

(b) $\sqrt{121}$.

..... [1]

39. Question | 4024 May-June 2026 P1 V2 Q2

2 Buses travel from the city centre to the airport.

(a) A bus leaves the city centre at 10 05.
The bus journey from the city centre to the airport takes 1 hour 25 minutes.

Work out the time the bus arrives at the airport.

..... [1]

(b) Another bus arrives at the airport at 16 20.
This bus journey from the city centre to the airport takes 1 hour 35 minutes.

Work out the time this bus leaves the city centre.

..... [1]

40. Question | 4024 May-June 2026 P1 V2 Q4

4 Ana has 60 cards.
Each card is red or green.

(a) The ratio red cards : green cards = 2 : 1.

Show that there are 20 green cards.

[1]

(b) Each of the 60 cards is a square or a triangle.
The ratio square cards : triangle cards = 5 : 1.

There are 16 green square cards.

Complete the two-way table.

	red	**green**	**total**
square		16	
triangle			
total		20	60

[2]

41. Question | 4024 May-June 2026 P1 V2 Q6

6 Pran invests $2000 in a savings account.
The account pays simple interest at a rate of 3.5% per year.

Calculate the value of the investment at the end of 4 years.

$ ..... [3]

42. Question | 4024 May-June 2026 P1 V2 Q9

9 Work out.

$$1\frac{2}{3} \times \frac{9}{10} + 2\frac{1}{5}$$

Give your answer as a mixed number in its simplest form.

..... [4]

43. Question | 4024 May-June 2026 P1 V2 Q11

11 **(a)** Write 400 as a product of its prime factors.

..... [2]

(b) Find the highest common factor (HCF) of 400 and 180.

..... [2]

44. Question | 4024 May-June 2026 P1 V2 Q14

14 **(a)** Write $350\,000$ in standard form.

..... [1]

(b) Write 2.7×10^{-4} as an ordinary number.

..... [1]

(c) Work out.

$$1.3 \times 10^{12} + 4.5 \times 10^{13}$$

Give your answer in standard form.

..... [2]

45. Question | 4024 May-June 2026 P1 V2 Q24

24 Expand and simplify.

$$\left(3+5\sqrt{2}\right)\left(2\sqrt{8}-1\right)$$

Give your answer in the form $a+b\sqrt{2}$.

..... [3]

46. Question | 4024 May-June 2026 P1 V3 Q1

1 **(a)** Write 2.3 million in figures.

..... [1]

(b) Write down all the factors of 45.

..... [2]

47. Question | 4024 May-June 2026 P1 V3 Q6

6 Alice has some red beads, yellow beads and blue beads.
The ratio red : yellow : blue = 1 : 3 : 6 .
Alice has 60 more yellow beads than red beads.

Calculate the total number of beads that Alice has.

..... [3]

48. Question | 4024 May-June 2026 P1 V3 Q7

7 **(a)** Work out.

$$30 - 0.5 \times (-6)$$

..... [2]

(b) Work out.

$$\frac{3}{4} - \frac{3}{10}$$

Give your answer as a fraction in its simplest form.

..... [3]

49. Question | 4024 May-June 2026 P1 V3 Q9

9 **(a)** Ann invests $300 in a savings account.
The account pays simple interest at a rate of 4% per year.

Calculate the value of her investment at the end of 5 years.

$ ..... [3]

(b) Ravi buys a computer in a sale.
The cost of the computer is reduced from $500 to $400.

Calculate the percentage reduction in the cost of the computer.

..... % [2]

50. Question | 4024 May-June 2026 P1 V3 Q12

12 **(a)** Write $0.000\,63$ in standard form.

..... [1]

(b) P and Q are numbers written in standard form.

$$P = 7 \times 10^{x} \qquad Q = 5 \times 10^{3x}$$

Giving your answers in standard form, find in terms of x

(i) P^2

..... [2]

(ii) $P \div Q$.

..... [2]

51. Question | 4024 May-June 2026 P1 V3 Q22

22 **(a)** Simplify.

$$\sqrt{98} - \sqrt{18}$$

..... [2]

(b) Rationalise the denominator.

$$\frac{5}{3+\sqrt{7}}$$

Give your answer in its simplest form.

..... [3]