Topical Past Papers

IGCSE International Mathematics (0607)
Paper 2

[Short-answer questions based on the Extended curriculum]

Exam Series: May/June 2017 – May/June 2025

Format Type B:
Each question is followed by its answer scheme

Introduction

Each Topical Past Paper Questions Workbook contains a comprehensive collection of hundreds of questions and corresponding answer schemes, presented in worksheet format. The questions are carefully arranged according to their respective chapters and topics, which align with the latest IGCSE or AS/A Level subject content. Here are the key features of these resources:

1. The workbook covers a wide range of topics, which are organized according to the latest syllabus content for Cambridge IGCSE or AS/A Level exams.
2. Each topic includes numerous questions, allowing students to practice and reinforce their understanding of key concepts and skills.
3. The questions are accompanied by detailed answer schemes, which provide clear explanations and guidance for students to improve their performance.
4. The workbook's format is user-friendly, with worksheets that are easy to read and navigate.
5. This workbook is an ideal resource for students who want to familiarize themselves with the types of questions that may appear in their exams and to develop their problem-solving and analytical skills.

Overall, Topical Past Paper Questions Workbooks are a valuable tool for students preparing for IGCSE or AS/A Level exams, providing them with the opportunity to practice and refine their knowledge and skills in a structured and comprehensive manner. To provide a clearer description of this book's specifications, here are some key details:

- Title: Cambridge IGCSE International Mathematics (0607) Paper 2 Topical Past Papers
- Subtitle: Exam Practice Worksheets With Answer Scheme
- Examination board: Cambridge Assessment International Education (CAIE)
- Subject code: 0607
- Years covered: May/June 2017 – May/June 2025
- Paper: 2 [Extended]
- Number of pages: 694
- Number of questions: 904

Contents

Chapter 1

Number

1. 0607_m25_qp_22 Q: 7

Write 84 as a product of its prime factors.

..... [2]

Answer:

Question	Answer	Marks	Partial Marks
	$2^2 \times 3 \times 7$ oe	2	**B1** for 2, 3, 7 only as list of factors not multiplied or **M1** for 2 correct stages in factor tree or factor ladder

2. 0607_m25_qp_22 Q: 8

By writing each number correct to 1 significant figure, estimate the value of

$$\frac{5923-2198}{0.5461\times 39.43}.$$

..... [2]

Answer:

Question	Answer	Marks	Partial Marks
	$\frac{6000-2000}{[0].5\times 40}$	**M1**	Three correct values
	200	**A1**	

3. 0607_m25_qp_22 Q: 14

(a) Work out $(0.5)^2$.

..... [1]

(b) Work out $\sqrt[3]{64} \times 3^2$.

..... [2]

(c) $16^n = 2^{n-1}$

Find the value of n.

$n =$ ..... [2]

Answer:

Question	Answer	Marks	Partial Marks
(a)	0.25 oe	**1**	
(b)	36	**2**	**M1** for $\left[\sqrt[3]{64} =\right] 4$
(c)	$-\frac{1}{3}$	**2**	**M1** for $4n = n - 1$ or **B1** for $[16^n =]\ 2^{4n}$

4. 0607_m25_qp_22 Q: 21

(a) Simplify.

$$3\sqrt{12}-\sqrt{48}+\sqrt{75}$$

..... [3]

(b) Rationalise the denominator and simplify.

$$\frac{6}{\sqrt{5}-\sqrt{2}}$$

..... [3]

Answer:

Question	Answer	Marks	Partial Marks
(a)	$7\sqrt{3}$	**3**	**B1** for $3\times 2\sqrt{3}$ **B1** for $4\sqrt{3}$ or $5\sqrt{3}$
(b)	$2\sqrt{5}+2\sqrt{2}$ or $2\left(\sqrt{5}+\sqrt{2}\right)$	**3**	**M2** for $\frac{6\left(\sqrt{5}+\sqrt{2}\right)}{5-2}$ oe or **M1** for $\frac{6}{\sqrt{5}-\sqrt{2}}\times\frac{\sqrt{5}+\sqrt{2}}{\sqrt{5}+\sqrt{2}}$

5. 0607_s25_qp_21 Q: 1

This is a list of numbers.

$3.142 \qquad \sqrt{125} \qquad 125 \qquad 81 \qquad 7\frac{2}{3}$

From this list write down

(a) a cube number

..... [1]

(b) an irrational number.

..... [1]

Answer:

Question	Answer	Marks	Partial Marks
(a)	125	**1**	
(b)	$\sqrt{125}$	**1**	

6. 0607_s25_qp_21 Q: 2

(a) Write 0.003 094 8 correct to 3 significant figures.

..... [1]

(b) Write 579 644 358 correct to the nearest million.

..... [1]

Answer:

Question	Answer	Marks	Partial Marks
(a)	0.003 09	**1**	
(b)	580 000 000	**1**	

7. 0607_s25_qp_21 Q: 5

Work out $1\frac{3}{7} \times 4\frac{2}{3}$.

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

..... [3]

Answer:

Question	Answer	Marks	Partial Marks
	$6\frac{2}{3}$	**3**	**B2** for $\frac{20}{3}$ oe or **M1** for $\frac{10}{7}$ and $\frac{14}{3}$ oe

8. 0607_s25_qp_21 Q: 7

The ratio $a : b = 7 : 12$.
The ratio $b : c = 8 : 5$.

Find the ratio $a : b : c$ in its simplest form.

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

Answer:

Question	Answer	Marks	Partial Marks
	14 : 24 : 15	2	**B1** for unsimplified or **M1** for attempt to find a common multiple of 8 and 12 e.g. 14 : 24 and 24 : 15

9. 0607_s25_qp_21 Q: 12

$P = 2^3 \times 3^a \times 5^b \times 7$ $\quad$ $Q = 2 \times 3^5 \times 7^c$

The highest common factor (HCF) of P and Q is $2 \times 3^4 \times 7$.

The lowest common multiple (LCM) of P and Q is $2^3 \times 3^5 \times 5^2 \times 7$.

Find the values of a, b and c.

$a =$ .....

$b =$ .....

$c =$ .....

[3]

Answer:

Question	Answer	Marks	Partial Marks
	$a = 4$ $b = 2$ $c = 1$	3	**B1** for each

10. 0607_s25_qp_21 Q: 22

Simplify.

(a) $\sqrt{120} \times \sqrt{27}$

..... [2]

(b) $\dfrac{1}{5-2\sqrt{3}}$

..... [2]

Answer:

Question	Answer	Marks	Partial Marks
(a)	$18\sqrt{10}$	**2**	**B1** for $2\sqrt{10}\sqrt{3}$ or $2\sqrt{30}$ or $3\sqrt{3}$ or $6\sqrt{90}$ or $9\sqrt{40}$
(b)	$\dfrac{5+2\sqrt{3}}{13}$	**2**	**M1** for $\dfrac{1}{(5-2\sqrt{3})} \times \dfrac{(5+2\sqrt{3})}{(5+2\sqrt{3})}$

11. 0607_s25_qp_22 Q: 1

(a) Work out $(0.02)^3$.

..... [1]

(b) Write your answer to **part (a)** in standard form.

..... [1]

Answer:

Question	Answer	Marks	Partial Marks
(a)	0.000 008 oe	**1**	
(b)	8×10^{-6}	**1**	**FT** *their* **(a)**

12. 0607_s25_qp_22 Q: 2

This is a list of numbers.

31 33 35 37 39 41

From this list, write down all the prime numbers.

..... [2]

Answer:

Question	Answer	Marks	Partial Marks
	31, 37, 41	**2**	**B1** for 1 correct and no incorrect, or 2 correct and no more than 1 incorrect

13. 0607_s25_qp_22 Q: 3

Write the fraction $\frac{24}{64}$ in its lowest terms.

..... [1]

Answer:

Question	Answer	Marks	Partial Marks
	$\frac{3}{8}$ final answer	**1**	

14. 0607_s25_qp_22 Q: 6

(a) Share 120 in the ratio 2 : 3.

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

(b) Share Z in the ratio $x : y$.

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

Answer:

Question	Answer	Marks	Partial Marks
(a)	48, 72 cao	**2**	**M1** for $\frac{1}{(2+3)} \times 120$ soi
(b)	$\frac{xZ}{x+y}$, $\frac{yZ}{x+y}$ oe final answer	**2**	**M1** for $\frac{Z}{x+y}$

15. 0607_s25_qp_22 Q: 14

Find the lowest common multiple (LCM) of these expressions.

$2x^3y^4 \qquad 3x^2z^3 \qquad 4y^2z$

..... [2]

Answer:

Question	Answer	Marks	Partial Marks
	$12x^3y^4z^3$	**2**	**M1** for any two correct from $12, x^3, y^4, z^3$ in a product but must have terms in x, y and z

16. 0607_s25_qp_22 Q: 20

(a) Rationalise the denominator.

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

..... [3]

(b) Expand and simplify.

$$\left(\sqrt{x+1}-\sqrt{x}\right)\left(\sqrt{x+1}+\sqrt{x}\right)$$

..... [2]

Answer:

Question	Answer	Marks	Partial Marks
(a)	$5-2\sqrt{6}$ or $\left(\sqrt{3}-\sqrt{2}\right)^2$	**3**	**M2** for $\frac{\left(\sqrt{3}\right)^2+\left(\sqrt{2}\right)^2-2\times\sqrt{3}\times\sqrt{2}}{\left(\sqrt{3}\right)^2-\left(\sqrt{2}\right)^2}$ or $\frac{\left(\sqrt{3}-\sqrt{2}\right)^2}{\left(\sqrt{3}\right)^2-\left(\sqrt{2}\right)^2}$ or **M1** for $\times\frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}-\sqrt{2}}$
(b)	1	**2**	**M1** for $(x+1)+\sqrt{x}\sqrt{(x+1)}-\sqrt{x}\sqrt{(x+1)}-x$

17. 0607_s25_qp_23 Q: 1

Work out.

$$2-5\times3+7$$

..... [1]

Answer:

Question	Answer	Marks	Partial Marks
	–6	**1**	

18. 0607_s25_qp_23 Q: 2

This is a list of numbers.

20 21 22 23 24 25 26 27

From the list write down

(a) the square number

..... [1]

(b) the prime number

..... [1]

(c) the triangle number.

..... [1]

Answer:

Question	Answer	Marks	Partial Marks
(a)	25	**1**	
(b)	23	**1**	
(c)	21	**1**	

19. 0607_s25_qp_23 Q: 5

Ganpreet and Rahul share \$240 in the ratio 7 : 5.

(a) Show that the value of Rahul's share is \$100.

[1]

(b) Ganpreet spends \$$x$ of her share.
Rahul spends \$$x$ of his share.
The ratio of their remaining money is Ganpreet : Rahul = 2 : 1.

Find the value of x.

$x =$ ..... [3]

Answer:

Question	Answer	Marks	Partial Marks
(a)	$\frac{240}{7+5}\times 5$ or $\frac{240}{12}\times 5$	**1**	
(b)	60	**3**	**M2** for $140 - x = 2(100 - x)$ oe or **M1** for $140 - x$ or $100 - x$

20. 0607_s25_qp_23 Q: 7

Work out $5\frac{1}{3} \div 1\frac{3}{5}$.

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

..... [3]

Answer:

Question	Answer	Marks	Partial Marks
	$3\frac{1}{3}$ cao	**3**	**M2** for $\frac{16}{3}\times\frac{5}{8}$ or $\frac{80}{15}\div\frac{24}{15}$ or better or **M1** for $\frac{16}{3}$ or $\frac{8}{5}$ or $\frac{5}{8}$

21. 0607_s25_qp_23 Q: 9

Find the value of $16^{-\frac{3}{2}}$.

..... [2]

Answer:

Question	Answer	Marks	Partial Marks
	$\frac{1}{64}$	**2**	**B1** for $\frac{1}{16^{\frac{3}{2}}}$ or 4^{-3} or $4096^{-\frac{1}{2}}$

22. 0607_s25_qp_23 Q: 11

(a) Simplify.

$$\sqrt{27}-2\sqrt{75}$$

..... [2]

(b) Rationalise the denominator and simplify.

$$\frac{6}{\sqrt{5}-\sqrt{2}}$$

..... [3]

Answer:

Question	Answer	Marks	Partial Marks
(a)	$-7\sqrt{3}$	**2**	**M1** for $3\sqrt{3}$ or $2\times5\sqrt{3}$
(b)	$2\sqrt{5}+2\sqrt{2}$ or $2\left(\sqrt{5}+\sqrt{2}\right)$	**3**	**M2** for $\frac{6\left(\sqrt{5}+\sqrt{2}\right)}{\left(\sqrt{5}\right)^2-\left(\sqrt{2}\right)^2}$ or better or **M1** for $\times\frac{\sqrt{5}+\sqrt{2}}{\sqrt{5}+\sqrt{2}}$

23. 0607_s25_qp_23 Q: 13

Work out.

$$4.9\times10^{199}+4.9\times10^{197}$$

..... [2]

Answer:

Question	Answer	Marks	Partial Marks
	4.949×10^{199}	**2**	**B1** for answer figs 4949 or for 0.049×10^{199} or 490×10^{197} seen

24. 0607_m24_qp_22 Q: 1

Write down a fraction between $\frac{5}{8}$ and $\frac{3}{4}$.

..... [1]

Answer:

Question	Answer	Marks	Partial Marks
	Any correct fraction e.g. $\frac{11}{16}$, $\frac{7}{10}$	**1**	

25. 0607_m24_qp_22 Q: 2

Work out $8 \div 0.02$.

..... [1]

Answer:

Question	Answer	Marks	Partial Marks
	400	**1**	

26. 0607_m24_qp_22 Q: 5

(a) Write the ratio 120 : 150 : 75 in its simplest form.

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

(b) Advik and Bidhi share \$160 in the ratio 3 : 5.

Calculate how much they each receive.

Advik \$ .....

Bidhi \$ ..... [2]

Answer:

Question	Answer	Marks	Partial Marks
(a)	8 : 10 : 5 final answer	**2**	**B1** for 24 : 30 : 15 or 40 : 50 : 25
(b)	Advik 60 Bidhi 100	**2**	**B1** for either or **M1** for 160 ÷ (3 + 5)

27. 0607_m24_qp_22 Q: 9

(a) Find the highest common factor (HCF) of 72 and 120.

..... [1]

(b) Find the lowest common multiple (LCM) of 54 and 81.

..... [2]

Answer:

Question	Answer	Marks	Partial Marks
(a)	24	**1**	
(b)	162	**2**	**B1** for $162k$ or **M1** for $2 \times 3 \times 3 \times 3$ and $3 \times 3 \times 3 \times 3$

28. 0607_m24_qp_22 Q: 10

Work out $16^{\frac{1}{4}}$.

..... [1]

Answer:

Question	Answer	Marks	Partial Marks
	2	**1**	

29. 0607_m24_qp_22 Q: 13

Write in the form $a+b\sqrt{3}$ where a and b are integers.

(a) $(5+2\sqrt{3})^2$

..... [2]

(b) $\dfrac{5}{2+\sqrt{3}}$

..... [2]

Answer:

Question	Answer	Marks	Partial Marks
(a)	$37+20\sqrt{3}$	**2**	**M1** for $25+5\times2\sqrt{3}+5\times2\sqrt{3}+2\sqrt{3}\times2\sqrt{3}$, 3 terms correct
(b)	$10-5\sqrt{3}$	**2**	**M1** for $\dfrac{5(2-\sqrt{3})}{(2+\sqrt{3})(2-\sqrt{3})}$

30. 0607_s24_qp_21 Q: 1

Work out.

2^4

..... [1]

Answer:

Question	Answer	Marks	Partial Marks
	16	**1**	

31. 0607_s24_qp_21 Q: 2

(a) Write $\frac{12}{25}$ as a percentage.

.....% [1]

(b) Work out.

$\frac{2}{7}+\frac{4}{7}$

..... [1]

Answer:

Question	Answer	Marks	Partial Marks
(a)	48	**1**	
(b)	$\frac{6}{7}$ oe	**1**	

32. 0607_s24_qp_21 Q: 4

Change 270 mm^2 into m^2.

..... m^2 [1]

Answer:

Question	Answer	Marks	Partial Marks
	0.00027[0]	**1**	

33. 0607_s24_qp_21 Q: 5

Write down the value of 9^0.

..... [1]

Answer:

Question	Answer	Marks	Partial Marks
	1	**1**	

34. 0607_s24_qp_21 Q: 6

Find the lowest common multiple (LCM) of 24 and 60.

..... [2]

Answer:

Question	Answer	Marks	Partial Marks
	120	**2**	**M1** for 24×60 or $120k$ or $2^3\times3\times5$ or $24=2\times2\times2\times3$ and $60=2\times2\times3\times5$ or $24=12\times2$ and $60=12\times5$ or correct factor trees for both or 2 lists of multiples up to at least 120

35. 0607_s24_qp_21 Q: 8

Write in standard form.

(a) 3 706 000

..... [1]

(b) 0.001 010

..... [1]

Answer:

Question	Answer	Marks	Partial Marks
(a)	3.706×10^{6} final answer	**1**	
(b)	$1.01[0]\times10^{-3}$	**1**	

36. 0607_s24_qp_21 Q: 11

(a) Simplify.

$$\sqrt{50}-\sqrt{8}$$

..... [2]

(b) By rationalising the denominator, simplify

$$\frac{12}{\sqrt{7}-\sqrt{3}}.$$

..... [3]

Answer:

Question	Answer	Marks	Partial Marks
(a)	$3\sqrt{2}$ cao	**2**	**B1** for $5\sqrt{2}$ or $2\sqrt{2}$

Question	Answer	Marks	Partial Marks
(b)	$3\left(\sqrt{7}+\sqrt{3}\right)$ or $3\sqrt{7}+3\sqrt{3}$	**3**	**M2** for $\frac{12\left(\sqrt{7}+\sqrt{3}\right)}{\sqrt{7}\sqrt{7}-\sqrt{7}\sqrt{3}+\sqrt{7}\sqrt{3}-\sqrt{3}\sqrt{3}}$ oe or **M1** for $\times\frac{\sqrt{7}+\sqrt{3}}{\sqrt{7}+\sqrt{3}}$

37. 0607_s24_qp_22 Q: 3

Work out 0.4×0.001.

..... [1]

Answer:

Question	Answer	Marks	Partial Marks
	[0].0004 or 4×10^{-4} or $\frac{1}{2500}$	**1**	

38. 0607_s24_qp_22 Q: 4

80 81 82 83 84 85 86 87 88 89

From the list of numbers, write down a prime number.

..... [1]

Answer:

Question	Answer	Marks	Partial Marks
	83 or 89	**1**	

39. 0607_s24_qp_22 Q: 7

(a) Simplify $\sqrt{98}$.

..... [1]

(b) Rationalise the denominator.

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

..... [2]

Answer:

Question	Answer	Marks	Partial Marks
(a)	$7\sqrt{2}$	**1**	
(b)	$3\left(\sqrt{5}+2\right)$ or $3\sqrt{5}+6$	**2**	**M1** for $\times\frac{\sqrt{5}+2}{\sqrt{5}+2}$

40. 0607_s24_qp_22 Q: 11

$10 < ab < 100$

Simplify $(a \times 10^7) \times (b \times 10^8)$.
Give your answer in standard form.

..... [2]

Answer:

Question	Answer	Marks	Partial Marks
	$\frac{ab}{10} \times 10^{16}$ final answer	2	Allow $\frac{ab}{10}$ oe e.g. $0.1ab$ **B1** for $ab \times 10^{15}$ seen

41. 0607_s24_qp_23 Q: 1

Work out $1.1 - 0.2^2$.

..... [2]

Answer:

Question	Answer	Marks	Partial Marks
	1.06 oe	2	**B1** for 0.04

42. 0607_s24_qp_23 Q: 2

Work out $\frac{3}{4}-\frac{1}{6}$.

..... [2]

Answer:

Question	Answer	Marks	Partial Marks
	$\frac{7}{12}$ oe	2	**M1** for $\frac{9}{12}-\frac{k}{12}$ or $\frac{k}{12}-\frac{2}{12}$ oe

43. 0607_s24_qp_23 Q: 6

$p = 5\times10^{-8}$ $q = 6.8\times10^{-7}$

Find, giving your answers in standard form,

(a) pq

..... [2]

(b) $p+q$.

..... [2]

Answer:

Question	Answer	Marks	Partial Marks
(a)	3.4×10^{-14} cao	2	**B1** for any equivalent seen
(b)	7.3×10^{-7} cao	2	**B1** for figs 73 or 0.5×10^{-7} or 68×10^{-8} seen

44. 0607_s24_qp_23 Q: 7

a, b and c are prime numbers.

$V = a^2b^4c^3$
$W = a^5b^3c$

Find the lowest common multiple (LCM) of V and W in terms of a, b and c.

..... [2]

Answer:

Question	Answer	Marks	Partial Marks
	$a^5b^4c^3$ Final answer	2	**B1** for $a^5b^4c^k$ or $a^5b^kc^3$ or $a^kb^4c^3$ or for any common multiple

45. 0607_w24_qp_21 Q: 1

Work out.

$$(0.01)^2$$

..... [1]

Answer:

Question	Answer	Marks	Partial Marks
	0.0001	1	Accept 1×10^{-4}