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 A:
Answers to all questions are provided as an appendix

Introduction

Each Topical Past Paper Questions Compilation 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: 665
- 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]

---

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]

---

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]

---

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]

---

5. 0607_s25_qp_21 Q: 1

This is a list of numbers.

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

From this list write down

(a) a cube number

..... [1]

(b) an irrational number.

..... [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]

---

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]

---

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]

---

9. 0607_s25_qp_21 Q: 12

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

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]

---

10. 0607_s25_qp_21 Q: 22

Simplify.

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

..... [2]

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

..... [2]

---

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]

---

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]

---

13. 0607_s25_qp_22 Q: 3

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

..... [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]

---

15. 0607_s25_qp_22 Q: 14

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

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

..... [2]

---

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]

---

17. 0607_s25_qp_23 Q: 1

Work out.

$$2-5\times3+7$$

..... [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]

---

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]

---

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]

---

21. 0607_s25_qp_23 Q: 9

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

..... [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]

---

23. 0607_s25_qp_23 Q: 13

Work out.

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

..... [2]

---

24. 0607_m24_qp_22 Q: 1

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

..... [1]

---

25. 0607_m24_qp_22 Q: 2

Work out $8\div0.02$.

..... [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]

---

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]

---

28. 0607_m24_qp_22 Q: 10

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

..... [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]

---

30. 0607_s24_qp_21 Q: 1

Work out.

2^4

..... [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]

---

32. 0607_s24_qp_21 Q: 4

Change $270\,\text{mm}^2$ into m^2.

..... m^2 [1]

---

33. 0607_s24_qp_21 Q: 5

Write down the value of 9^0.

..... [1]

---

34. 0607_s24_qp_21 Q: 6

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

..... [2]

---

35. 0607_s24_qp_21 Q: 8

Write in standard form.

(a) 3 706 000

..... [1]

(b) 0.001 010

..... [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]

---

37. 0607_s24_qp_22 Q: 3

Work out 0.4×0.001.

..... [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]

---

39. 0607_s24_qp_22 Q: 7

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

..... [1]

(b) Rationalise the denominator.

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

..... [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]

---

41. 0607_s24_qp_23 Q: 1

Work out $1.1-0.2^2$.

..... [2]

---

42. 0607_s24_qp_23 Q: 2

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

..... [2]

---

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]

---

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]

Appendix A

Answers

1. 0607_m25_ms_22 Q: 7

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_ms_22 Q: 8

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

3. 0607_m25_ms_22 Q: 14

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_ms_22 Q: 21

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_ms_21 Q: 1

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

6. 0607_s25_ms_21 Q: 2

Question	Answer	Marks	Partial Marks
(a)	0.003 09	**1**	
(b)	580000000	**1**	

7. 0607_s25_ms_21 Q: 5

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_ms_21 Q: 7

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_ms_21 Q: 12

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

10. 0607_s25_ms_21 Q: 22

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)	$\frac{5+2\sqrt{3}}{13}$	2	**M1** for $\frac{1}{(5-2\sqrt{3})} \times \frac{(5+2\sqrt{3})}{(5+2\sqrt{3})}$

11. 0607_s25_ms_22 Q: 1

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

12. 0607_s25_ms_22 Q: 2

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_ms_22 Q: 3

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

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14. 0607_s25_ms_22 Q: 6

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 $\frac{Z}{x+y}$

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15. 0607_s25_ms_22 Q: 14

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

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16. 0607_s25_ms_22 Q: 20

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

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17. 0607_s25_ms_23 Q: 1

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

18. 0607_s25_ms_23 Q: 2

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

19. 0607_s25_ms_23 Q: 5

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_ms_23 Q: 7

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_ms_23 Q: 9

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_ms_23 Q: 11

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 $\dfrac{6\left(\sqrt{5}+\sqrt{2}\right)}{\left(\sqrt{5}\right)^2-\left(\sqrt{2}\right)^2}$ or better or **M1** for $\times\dfrac{\sqrt{5}+\sqrt{2}}{\sqrt{5}+\sqrt{2}}$

23. 0607_s25_ms_23 Q: 13

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_ms_22 Q: 1

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

25. 0607_m24_ms_22 Q: 2

Question	Answer	Marks	Partial Marks
	400	**1**	

26. 0607_m24_ms_22 Q: 5

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_ms_22 Q: 9

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_ms_22 Q: 10

Question	Answer	Marks	Partial Marks
	2	1	

29. 0607_m24_ms_22 Q: 13

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 $\frac{5(2-\sqrt{3})}{(2+\sqrt{3})(2-\sqrt{3})}$

30. 0607_s24_ms_21 Q: 1

Question	Answer	Marks	Partial Marks
	16	1	

31. 0607_s24_ms_21 Q: 2

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

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32. 0607_s24_ms_21 Q: 4

Question	Answer	Marks	Partial Marks
	0.00027[0]	1	

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33. 0607_s24_ms_21 Q: 5

Question	Answer	Marks	Partial Marks
	1	1	

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34. 0607_s24_ms_21 Q: 6

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

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35. 0607_s24_ms_21 Q: 8

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

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36. 0607_s24_ms_21 Q: 11

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_ms_22 Q: 3

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

38. 0607_s24_ms_22 Q: 4

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

39. 0607_s24_ms_22 Q: 7

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_ms_22 Q: 11

Question	Answer	Marks	Partial Marks
	$\frac{ab}{10}\times10^{16}$ final answer	2	Allow $\frac{ab}{10}$ oe e.g. $0.1ab$ **B1** for $ab\times10^{15}$ seen

41. 0607_s24_ms_23 Q: 1

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

42. 0607_s24_ms_23 Q: 2

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_ms_23 Q: 6

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_ms_23 Q: 7

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