

TOPICAL PAST PAPER QUESTIONS WORKSHEETS

IGCSE International Mathematics (0607)

Paper 2 (Extended)

Exam Series: May/June 2017 – May/June 2023

Format Type A:

Answers to all questions are provided as an appendix



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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 Paper Questions
- Subtitle: Exam Practice Worksheets With Answer Scheme
- Examination board: Cambridge Assessment International Education (CAIE)
- Subject code: 0607
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Chapter 1

Number

1. 0607_m23_qp_22 Q: 1

71 73 75 77 79 81 87

From this list of numbers write down

(a) a prime number

..... [1]

(b) a square number.

..... [1]

2. 0607_m23_qp_22 Q: 2

Work out 10% of 250.

..... [1]

3. 0607_m23_qp_22 Q: 3

Work out.

(a) 2.04×20

..... [1]

(b) $\frac{0.09}{0.003}$

..... [1]

4. 0607_m23_qp_22 Q: 8

$$p = 2 \times 10^3 \quad q = 8 \times 10^{-5}$$

Work out the following, giving each answer in standard form.

(a) pq

..... [2]

(b) $\frac{p}{q}$

..... [2]

5. 0607_s23_qp_21 Q: 1

(a) Insert **one** pair of brackets to make the statement correct.

$$3 \times 7 + 2 + 9 = 36 \quad [1]$$

(b) Work out $(0.2)^3$.

..... [1]

(c) Write down a prime number between 80 and 90.

..... [1]

6. 0607_s23_qp_21 Q: 5

(a) Work out $\frac{11}{12} + \frac{3}{4}$.

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

..... [2]

(b) Simplify $\frac{a}{x} \div \frac{b}{2y}$.

Give your answer as a single fraction.

..... [1]

7. 0607_s23_qp_21 Q: 11

Simplify $\sqrt{27} + \sqrt{12} - \sqrt{108}$.

..... [2]

8. 0607_s23_qp_22 Q: 1

Write down

(a) a square number between 101 and 150

..... [1]

(b) a fraction between $\frac{2}{3}$ and $\frac{3}{4}$

..... [1]

(c) an irrational number between 6 and 7.

..... [1]

9. 0607_s23_qp_22 Q: 2

Work out.

(a) $-7 \div -2$

..... [1]

(b) $(0.3)^2$

..... [1]

10. 0607_s23_qp_22 Q: 6

Find the value of $64^{\frac{1}{3}}$.

..... [1]

11. 0607_s23_qp_22 Q: 7

Lee cycles for 60 km at an average speed of 30 km/h.
He then returns along the same route at an average speed of 20 km/h.

Find Lee's average speed for the whole journey.

..... km/h [3]

12. 0607_s23_qp_22 Q: 13

Rationalise the denominator and simplify.

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

..... [3]

13. 0607_s23_qp_23 Q: 1

29 31 41 49 51 59

From this list, write down **all** the numbers that are prime numbers.

..... [2]

14. 0607_s23_qp_23 Q: 3

Work out.

(a) 0.04×0.06

..... [1]

(b) $\frac{0.02}{0.8}$

..... [1]

15. 0607_s23_qp_23 Q: 7

(a) Write 0.003 08 in standard form.

..... [1]

(b) Work out $(7 \times 10^6) \times (3 \times 10^{-8})$.

Give your answer in standard form.

..... [2]

16. 0607_s23_qp_23 Q: 9

The total cost of 5 pens and 7 pencils is \$6.75 .
Each pencil costs \$0.45 .

Find the cost of one pen.

\$ [3]

17. 0607_s23_qp_23 Q: 10

Write 48 as a product of its prime factors.

..... [2]

18. 0607_m22_qp_22 Q: 1

Write down a cube number between 10 and 100.

..... [1]

19. 0607_m22_qp_22 Q: 2

Work out $(0.1)^4$.

..... [1]

20. 0607_m22_qp_22 Q: 3

Alex goes to sleep at 20 40 and wakes up the next morning at 06 10.

Work out the length of time, in hours and minutes, that Alex is asleep.

..... h min [1]

21. 0607_m22_qp_22 Q: 5

Work out $\frac{3}{4} - \frac{1}{6}$, giving your answer as a fraction in its lowest terms.

..... [2]

22. 0607_m22_qp_22 Q: 6

Divide \$140 in the ratio 2 : 1 : 4.

\$, \$, \$ [2]

23. 0607_m22_qp_22 Q: 8

Write 4^{-2} as a fraction.

..... [1]

24. 0607_m22_qp_22 Q: 9

A train is travelling at a speed of 30 m/s.

The length of the train is 70 m.

The train passes through a station of length 170 m.

Find the time the train takes to pass completely through the station.

..... s [2]

25. 0607_m22_qp_22 Q: 13

Rationalise the denominator.

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

..... [1]

26. 0607_m22_qp_22 Q: 14

In this calculation, the three numbers are written in standard form.

$$(4 \times 10^p) \times (n \times 10^{p+2}) = 3.2 \times 10^t$$

n , p and t are integers.

(a) Find the value of n .

$$n = \dots\dots\dots [1]$$

(b) Find t in terms of p .

$$t = \dots\dots\dots [1]$$

27. 0607_s22_qp_21 Q: 3

From the list of numbers, write down

(a) the prime number,

..... [1]

(b) the cube number.

..... [1]

28. 0607_s22_qp_21 Q: 5

(a) Write 7.29784 correct to 3 significant figures.

..... [1]

(b) Write 0.00000306 in standard form.

..... [1]

29. 0607_s22_qp_21 Q: 8

Find the value of $49^{\frac{1}{2}}$.

..... [1]

30. 0607_s22_qp_21 Q: 9

Write 90 as the product of its prime factors.

..... [2]

31. 0607_s22_qp_21 Q: 13

(a) Simplify fully.

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

..... [2]

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

$$\frac{1}{\sqrt{3} + 5}$$

..... [2]

32. 0607_s22_qp_22 Q: 1

Work out.

$$(0.03)^2$$

..... [1]

33. 0607_s22_qp_22 Q: 2

(a) Write the fraction $\frac{15}{40}$ in its lowest terms.

..... [1]

(b) Work out.

$$\frac{2}{3} + \frac{2}{9}$$

..... [2]

34. 0607_s22_qp_22 Q: 5

Work out $64^{\frac{1}{3}}$.

..... [1]

35. 0607_s22_qp_22 Q: 7

Kendra jogs 7 km in 45 minutes.
She then runs at 12 km/h for 30 minutes.

Find her average speed in km/h for the whole journey.

..... km/h [3]

36. 0607_s22_qp_22 Q: 17

(a) Expand the brackets and simplify.

$$(\sqrt{a} + \sqrt{b})(\sqrt{a} - \sqrt{b})$$

..... [2]

(b) Rationalise the denominator.

$$\frac{1}{\sqrt{7} + \sqrt{6}}$$

..... [1]

(c) Work out the value of

$$\frac{1}{\sqrt{9} + \sqrt{8}} + \frac{1}{\sqrt{8} + \sqrt{7}} + \frac{1}{\sqrt{7} + \sqrt{6}} + \frac{1}{\sqrt{6} + \sqrt{5}} + \frac{1}{\sqrt{5} + \sqrt{4}}.$$

..... [2]

Appendix A

Answers

1. 0607_m23_ms_22 Q: 1

Question	Answer	Marks	Partial Marks
(a)	71 or 73 or 79	1	
(b)	81	1	

2. 0607_m23_ms_22 Q: 2

Question	Answer	Marks	Partial Marks
	25	1	

3. 0607_m23_ms_22 Q: 3

Question	Answer	Marks	Partial Marks
(a)	40.8[0]	1	
(b)	30 or 3×10^1	1	

4. 0607_m23_ms_22 Q: 8

Question	Answer	Marks	Partial Marks
(a)	1.6×10^{-1} cao	2	B1 for correct answer not in standard form seen
(b)	2.5×10^7 cao	2	B1 for correct answer not in standard form seen If 0 scored SC1 for figs 25 seen

5. 0607_s23_ms_21 Q: 1

Question	Answer	Marks	Partial Marks
(a)	$3 \times (7 + 2) + 9 = 36$	1	
(b)	0.008 oe	1	
(c)	83 or 89	1	

6. 0607_s23_ms_21 Q: 5

Question	Answer	Marks	Partial Marks
(a)	$1\frac{2}{3}$ cao	2	M1 for $\frac{11}{12} + \frac{9}{12}$
(b)	$\frac{2ay}{bx}$ final answer	1	

7. 0607_s23_ms_21 Q: 11

Question	Answer	Marks	Partial Marks
	$-\sqrt{3}$	2	B1 for two of $3\sqrt{3}$ or $2\sqrt{3}$ or $6\sqrt{3}$

8. 0607_s23_ms_22 Q: 1

Question	Answer	Marks	Partial Marks
(a)	121 or 144	1	
(b)	Any correct fraction	1	
(c)	Any correct irrational number	1	

9. 0607_s23_ms_22 Q: 2

Question	Answer	Marks	Partial Marks
(a)	3.5 or $3\frac{1}{2}$	1	
(b)	0.09	1	

10. 0607_s23_ms_22 Q: 6

Question	Answer	Marks	Partial Marks
	4 cao	1	

11. 0607_s23_ms_22 Q: 7

Question	Answer	Marks	Partial Marks
	24	3	B2 for 3[h] and 2[h] soi by 5 [h] or B1 for 60/30 or 60/20 or 3[h] If B0 or B1 scored, then M1 for $120 \div \text{their total time}$ (<i>their</i> total time MUST be greater than 2)

12. 0607_s23_ms_22 Q: 13

Question	Answer	Marks	Partial Marks
	$\frac{3+\sqrt{5}}{2}$ cao final answer	3	B2 for $\frac{2(3+\sqrt{5})}{4}$ or $\frac{6+2\sqrt{5}}{4}$ or M1 for $\times \frac{3+\sqrt{5}}{3+\sqrt{5}}$

13. 0607_s23_ms_23 Q: 1

Question	Answer	Marks	Partial Marks
	29 31 41 59	2	B1 for at least two correct

14. 0607_s23_ms_23 Q: 3

Question	Answer	Marks	Partial Marks
(a)	0.0024 oe	1	
(b)	0.025 oe	1	

15. 0607_s23_ms_23 Q: 7

Question	Answer	Marks	Partial Marks
(a)	3.08×10^{-3} cao	1	
(b)	2.1×10^{-1} cao	2	M1 for correct answer not in standard form

16. 0607_s23_ms_23 Q: 9

Question	Answer	Marks	Partial Marks
	0.72	3	M2 for $\frac{6.75 - \text{their}(7 \times 0.45)}{5}$ oe or M1 for $6.75 - 7 \times 0.45$ oe if 0 scored, SC2 for 72

17. 0607_s23_ms_23 Q: 10

Question	Answer	Marks	Partial Marks
	$2^4 \times 3$ or $2 \times 2 \times 2 \times 2 \times 3$	2	M1 for 2^4 and 3 seen

18. 0607_m22_ms_22 Q: 1

Question	Answer	Marks	Partial Marks
	27 or 64	1	

19. 0607_m22_ms_22 Q: 2

Question	Answer	Marks	Partial Marks
	0.0001	1	

20. 0607_m22_ms_22 Q: 3

Question	Answer	Marks	Partial Marks
	9h30min	1	

21. 0607_m22_ms_22 Q: 5

Question	Answer	Marks	Partial Marks
	$\frac{7}{12}$	2	M1 for $\frac{9}{12} - \frac{2}{12}$ oe i.e. common denominator

22. 0607_m22_ms_22 Q: 6

Question	Answer	Marks	Partial Marks
	40, 20, 80	2	M1 for $140 \div (2 + 1 + 4)$ soi

23. 0607_m22_ms_22 Q: 8

Question	Answer	Marks	Partial Marks
	$\frac{1}{16}$ cao	1	

24. 0607_m22_ms_22 Q: 9

Question	Answer	Marks	Partial Marks
	8	2	M1 for $(170 + 70) \div 30$ If 0 scored SC1 for answer $5\frac{2}{3}$ oe

25. 0607_m22_ms_22 Q: 13

Question	Answer	Marks	Partial Marks
	$\frac{2\sqrt{3}}{3}$	1	

26. 0607_m22_ms_22 Q: 14

Question	Answer	Marks	Partial Marks
(a)	8	1	
(b)	$2p + 3$	1	If 0 scored in (a) and (b) SC1 for $n = 0.8$ and $2p + 2$

27. 0607_s22_ms_21 Q: 3

Question	Answer	Marks	Partial Marks
(a)	29 only	1	
(b)	27 only	1	

28. 0607_s22_ms_21 Q: 5

Question	Answer	Marks	Partial Marks
(a)	7.30 cao	1	
(b)	3.06×10^{-6} final answer cao	1	

29. 0607_s22_ms_21 Q: 8

Question	Answer	Marks	Partial Marks
	7	1	

30. 0607_s22_ms_21 Q: 9

Question	Answer	Marks	Partial Marks
	$2 \times 3 \times 3 \times 5$ or $2 \times 3^2 \times 5$ final answer	2	M1 for 2, 3 and 5 seen as factors

31. 0607_s22_ms_21 Q: 13

Question	Answer	Marks	Partial Marks
(a)	$3\sqrt{3}$ final answer	2	M1 for either $5\sqrt{3}$ or $2\sqrt{3}$

Question	Answer	Marks	Partial Marks
(b)	$-\frac{\sqrt{3}-5}{22}$ or $\frac{5-\sqrt{3}}{22}$ oe final answer	2	M1 for $\times \frac{\sqrt{3}-5}{\sqrt{3}-5}$ oe Must be convinced that $\sqrt{3}-5$ and NOT $\sqrt{3-5}$

32. 0607_s22_ms_22 Q: 1

Question	Answer	Marks	Partial Marks
	0.0009	1	

33. 0607_s22_ms_22 Q: 2

Question	Answer	Marks	Partial Marks
(a)	$\frac{3}{8}$ final answer	1	
(b)	$\frac{8}{9}$	2	M1 for both fractions correct with same common denominator

34. 0607_s22_ms_22 Q: 5

Question	Answer	Marks	Partial Marks
	4 only	1	

35. 0607_s22_ms_22 Q: 7

Question	Answer	Marks	Partial Marks
	10.4 or $\frac{156}{15}$ oe	3	M2 for $\frac{(7+12 \times \frac{30}{60})}{45+30} \times 60$ or $\frac{(7+6)}{0.75+0.5}$ oe or M1 for <i>(their total dist) / (their total time)</i>

36. 0607_s22_ms_22 Q: 17

Question	Answer	Marks	Partial Marks
(a)	$a-b$	2	M1 for $\sqrt{a}\sqrt{a} - \sqrt{a}\sqrt{b} + \sqrt{b}\sqrt{a} - \sqrt{b}\sqrt{b}$ oe
(b)	$\sqrt{7} - \sqrt{6}$	1	
(c)	1	2	M1 for at least 3 of $\sqrt{9} - \sqrt{8} + \sqrt{8} - \sqrt{7} \dots - \sqrt{4}$ or B1 for $\sqrt{9} - \sqrt{4}$