



Article: 267

TOPICAL
PAST PAPERS

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MATHEMATICS
PAPER-1

- ✓ All Variants
- ✓ Mark Schemes Included
- ✓ Questions order new to old



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Article No. 267

Mathematics⁴⁰²⁴

Paper-1

(Topical Past Paper with Mark Scheme)
(2008-2018)

Features:

- ✓ All Variants
- ✓ Mark schemes included
- ✓ Questions order new to old

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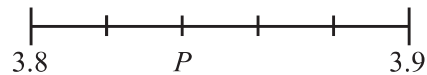
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Unit 1: Number

1. O/N 17/P12/Q6/a

- (a) The diagram shows a scale from 3.8 to 3.9, divided into five equal parts.



What is the value at the mark labelled P ?

[1]

2. M/J 17/P12/Q1/b

- (a) Evaluate 0.2×0.006 .

[1]

3. M/J 17/P11/Q1/b

- (a) Add one pair of brackets to make the statement below true.

$$2 \times 3 + 4 \times 5 = 70$$

[1]

4. M/J 17/P11/Q14

- (a) Write 0.000 186 in standard form.

[1]

- (b) $s = 1.3 \times 10^7$ $t = 8 \times 10^8$

Giving each answer in standard form, find

(i) t^2 ,

[1]

(ii) $t - s$.

[2]

5. O/N 16/P12/Q1/a

- (a) Evaluate $9.03 - (4.273 + 2.3)$.

[1]

6. O/N 16/P11/Q2

The paper on a roll is 4.5 metres long.

Mary cuts as many pieces as possible, each of length 60 cm, from the roll.

- (a) Calculate the number of pieces.

[1]

- (b) Calculate the length of paper that remains on the roll.

[1]

7. M/J 16/P12/Q6

- (a) Express 96 as a product of its prime factors.

[1]

- (b) 24 is a common factor of 96 and the integer n .

Given that n is less than 96, find the largest possible value of n .

[1]

8. M/J 16/P11/Q1/a

- (a) Evaluate $12 - 6 \div 3 + 4$.

[1]

9. M/J 16/P11/Q21

- (a) Express 500 as the product of its prime factors.

[1]

- (b) $M = 2 \times 3^2$

$$N = 2^4 \times 3^2$$

Find the values of p and q when

(i) $M \times N = 2^p \times 3^q$,

[1]

(ii) $M \div N = 2^p \times 3^q$, [1]

(iii) $N^2 = 2^p \times 3^q$. [1]

10. O/N 15/P12/Q1

(a) Evaluate 0.03×0.3 . [1]

(b) Evaluate $5 - 2(3 - 1.4)$. [1]

11. O/N 15/P11/Q1

(a) Work out $12 + 6 \div 3 + 1 \times 5$. [1]

(b) Work out $\frac{7}{9} - \frac{3}{5}$. [1]

12. O/N 15/P11/Q10/a,b

Here is a list of numbers.

−8 −5 −3 −2 0 2 4 9

(a) Write down two numbers from the list that have a difference of 10. [1]

(b) Find the sum of the numbers in the list. [1]

13. M/J 15/P12/Q1

(a) Evaluate $\frac{1.3 + 2.9}{0.2}$. [1]

(b) Evaluate $2\frac{1}{4} \times \frac{1}{5}$. [1]

14. M/J 15/P11/Q1

(a) Evaluate $\frac{3}{8} + 1\frac{1}{3}$. [1]

(b) Evaluate $5 - 3(2 - 1.4)$. [1]

15. O/N 14/P11/Q1/a

(a) Write the number forty one thousand and six in figures. [1]

16. O/N 14/P11/Q2/b

(a) Evaluate 0.4×0.2 . [1]

17. O/N 14/P11/Q4/b

x is an integer between 50 and 70.

Write down the value of x when

(a) x is a prime factor of 268. [1]

18. M/J 14/P12/Q1/b

(a) Evaluate $0.018 \div 0.06$. [1]

19. M/J 14/P11/Q2

(a) Evaluate $5 + 1 \times 0.3$. [1]

(b) Evaluate $18 \div 0.2$. [1]

20. M/J 14/P11/Q8/b

(a) Write $\frac{8}{25}$ as a decimal. [1]

32. M/J 12/P11/Q9

Buses following route A leave the bus station every five minutes.

Buses following route B leave the bus station every six minutes.

Buses following route C leave the bus station every nine minutes.

Three buses, following routes A, B and C, leave together at 13 00.

What is the next time when buses following all three routes leave the bus station together? [2]

33. M/J 12/P11/Q12

From the numbers listed above, write down

0.2	2	$\sqrt{2}$	$\frac{1}{3}$	0.83	8	81
-----	---	------------	---------------	------	---	----

(a) a prime number, [1]

(b) a cube number, [1]

(c) an irrational number. [1]

34. O/N 11/P12/Q1

(a) Evaluate $2\frac{3}{4} - 1\frac{7}{9}$. [1]

(b) Evaluate $0.7 - 0.1 \times 3$. [1]

35. M/J 11/P12/Q14

(a) Express 108 as a product of its prime factors. [1]

(b) Written as products of their prime factors, $N = 2^p \times 5^q \times 7^r$ and $500 = 2^2 \times 5^3$.

The highest common factor of N and 500 is $2^2 \times 5^2$.

The lowest common multiple of N and 500 is $2^3 \times 5^3 \times 7$.

Find p , q and r . [2]

36. M/J 11/P11/Q2/b

(a) Write down an irrational number between 3 and 4. [1]

37. M/J 11/P11/Q4

Write down

(a) a square number that is a factor of 75, [1]

(b) a cube number that is a multiple of 24. [1]

38. O/N 10/P12/Q1, O/N 10/P13/Q1

(a) Evaluate $3\frac{1}{7} - 2\frac{1}{3}$. [1]

(b) Evaluate $\frac{2}{9} \times 1\frac{7}{8}$, giving your answer as a fraction in its lowest terms. [1]

39. O/N 10/P12/Q2, O/N 10/P13/Q2

(a) Evaluate $6.3 \div 0.09$. [1]

(b) Find the decimal number that is exactly halfway between 3.8 and 4.3. [1]

40. M/J 10/P12/Q1, M/J 10/P13/Q1

Evaluate

(a) $1.5 - 0.2 \times 4$, [1]

(b) $4.2 \div 0.07$. [1]

41. M/J 10/P12/Q9, M/J 10/P13/Q9

Written as a product of prime factors, $168 = 2^3 \times 3 \times 7$.

(a) Express 140 as a product of its prime factors. [1]

(b) Find the highest common factor of 168 and 140. [1]

(c) Find the smallest positive integer, n , such that $168n$ is a square number. [1]

42. M/J 10/P11/Q2

(a) Evaluate $10 - 8 \div 2 + 3$. [1]

(b) Find 20% of 60 cm. [1]

43. O/N 09/P01/Q4

The numbers 294 and 784, written as the product of their prime factors, are

$$294 = 2 \times 3 \times 7^2, \quad 784 = 2^4 \times 7^2.$$

Find

(a) the largest integer which is a factor of both 294 and 784, [1]

(b) $\sqrt{784}$. [1]

44. M/J 09/P01/Q1/a

(a) Evaluate $17 - 5 \times 3 + 1$. [1]

45. M/J 09/P01/Q3/b

(a) Write down the two prime numbers between 30 and 40. [1]

46. M/J 09/P01/Q5/a

(a) Evaluate 0.5×0.007 . [1]

47. M/J 09/P01/Q6

(a) Write down all the factors of 18. [1]

(b) Write 392 as the product of its prime factors. [1]

48. M/J 09/P01/Q17/b

(a) Given that y is an integer and $-3 < 2y - 6 < 4$, list the possible values of y . [2]

49. O/N 08/P01/Q1

Evaluate

(a) 0.3×0.06 , [1]

(b) $0.4 + 0.3 \times 5$. [1]

50. M/J 08/P01/Q1

(a) $\frac{1}{2} - \frac{3}{7}$, [1]

(b) $2\frac{2}{3} \times 1\frac{3}{4}$. [1]

51. M/J 08/P01/Q2

Evaluate

(a) $25 - 18.3$, [1]

(b) 1.7×0.03 . [1]

52. M/J 08/P01/Q5

It is given that $68.2 \times 0.235 = 16.027$.

Hence evaluate

(a) 0.0682×2350 , [1]

(b) $160.27 \div 0.0235$. [1]

Answers Section

- | | | | |
|--|------------------|---|-------------|
| <p>1. O/N 17/P12/Q6/a
(a) 3.84</p> | 1 | <p>13. M/J 15/P12/Q1
(a) 21</p> | 1 |
| <p>2. M/J 17/P12/Q1/b
(a) 0.0012 oe</p> | 1 | <p>(b) $\frac{9}{20}$ oe</p> | 1 |
| <p>3. M/J 17/P11/Q1/b
(a) $2 \times (3 + 4) \times 5$ cao</p> | 1 | <p>14. M/J 15/P11/Q1
(a) $1\frac{17}{24}, \frac{41}{24}$ oe</p> | 1 |
| <p>4. M/J 17/P11/Q14
(a) 1.86×10^{-4}
(b) (i) 6.4×10^{17}
(ii) 7.87×10^8</p> | 1
1
2 | <p>(b) 3.2 oe</p> | 1 |
| <p>5. O/N 16/P12/Q1/a
(a) 2.457</p> | 1 | <p>15. O/N 14/P11/Q1/a
(a) 41 006</p> | 1 |
| <p>6. O/N 16/P11/Q2
(a) 7
(b) 30</p> | 1
1 | <p>16. O/N 14/P11/Q2/b
(a) (0).08</p> | 1 |
| <p>7. M/J 16/P12/Q6
(a) $2^5 \times 3$
(b) 72</p> | 1*
1 | <p>17. O/N 14/P11/Q4/b
(a) 67</p> | 1 |
| <p>8. M/J 16/P11/Q1/a
(a) 14</p> | 1 | <p>18. M/J 14/P12/Q1/b
(a) 0.3oe</p> | 1 |
| <p>9. M/J 16/P11/Q21
(a) $2^2 \times 5^3$
(b) (i) $p = 5$ and $q = 4$
(ii) $p = -3$ and $q = 0$
(iii) $p = 8$ and $q = 4$</p> | 1
1
1
1 | <p>19. M/J 14/P11/Q2
(a) 5.3
(b) 90</p> | 1
1 |
| <p>10. O/N 15/P12/Q1
(a) 0.009(0...)
(b) 1.8</p> | 1
1 | <p>20. M/J 14/P11/Q8/b
(a) (0).32</p> | 1 |
| <p>11. O/N 15/P11/Q1
(a) 19
(b) $\frac{8}{45}$ oe</p> | 1
1 | <p>21. M/J 14/P11/Q15
(a) 10 etc.
(b) 0
(c) $\sqrt{50}$ etc.</p> | 1
1
1 |
| <p>12. O/N 15/P11/Q10/a,b
(a) -8 and 2
(b) -3</p> | 1
1 | <p>22. O/N 13/P12/Q2
(a) $1\frac{9}{20}$
(b) 0.0602</p> | 1
1 |
| | | <p>23. O/N 13/P11/Q1/a
(a) $\frac{15}{16}$ oe</p> | 1 |
| | | <p>24. O/N 13/P11/Q2/a
(a) 0.024</p> | 1 |

- 25. M/J 13/P12/Q3/a**
(a) 5 cm, 500 mm, 500 m, 50 km 1
- 26. M/J 13/P12/Q8/b,c**
(a) 13 1
(b) Any irrational number in range $1 < n < 2$ 1
- 27. M/J 13/P12/Q9/b,c**
(a) $11 (< \sqrt{131} <) 12$ 1
(b) $(3 \times 2 + 1)^2 = 49$ 1
- 28. M/J 13/P11/Q12/a,b**
(a) 619 1
(b) 196 1
- 29. O/N 12/P12/Q1/a**
(a) 10.6 1
- 30. O/N 12/P12/Q10**
(a) $2^2 \times 3^2 \times 5$ oe 1
(b) 11 www 1
- 31. O/N 12/P11/Q2/a**
(a) 0.76 oe 1
- 32. M/J 12/P11/Q9**
14 30 2
- 33. M/J 12/P11/Q12**
(a) 2 1
(b) 8 1
(c) $\sqrt{2}$ 1
- 34. O/N 11/P12/Q1**
(a) $\frac{35}{36}$ 1
(b) 0.4 1
- 35. M/J 11/P12/Q14**
(a) $2^2 \times 3^3$ 1
(b) $(p=) 3, (q=) 2, (r=) 1$ 2
- 36. M/J 11/P11/Q2/b**
(a) $\pi, \sqrt{10}, \dots$ 1
- 37. M/J 11/P11/Q4**
(a) 1 or 25 1
(b) 216 1
- 38. O/N 10/P12/Q1, O/N 10/P13/Q1**
(a) $\frac{17}{21}$ oe 1
(b) $\frac{5}{12}$ cao 1
- 39. O/N 10/P12/Q2, O/N 10/P13/Q2**
(a) 70 1 (b) 4.05 1
- 40. M/J 10/P12/Q1, M/J 10/P13/Q1**
(a) 0.7 1 (b) 60 1
- 41. M/J 10/P12/Q9, M/J 10/P13/Q9**
(a) $2^2 \times 5 \times 7$ 1
(b) 28 1
(c) 42 1
- 42. M/J 10/P11/Q2**
(a) 9 1 (b) 12 1
- 43. O/N 09/P01/Q4**
(a) 98, $2 \times 7^2, 2 \times 7 \times 7$ 1
(b) 28 1
- 44. M/J 09/P01/Q1/a**
(a) 3 1
- 45. M/J 09/P01/Q3/b**
(a) 31, 37 1
- 46. M/J 09/P01/Q5/a**
(a) (0).0035
- 47. M/J 09/P01/Q6**
(a) 1,2,3,6,9,18 1
(b) $2^3 \times 7^2$ 1
- 48. M/J 09/P01/Q17/b**
(a) 2,3,4 2
- 49. O/N 08/P01/Q1**
(a) 0.018 or equiv. 1
(b) 1.9 or equiv. 1
- 50. M/J 08/P01/Q1**
(a) $\frac{1}{14}$ 1 (b) $4 \frac{2k}{3k}$ 1
- 51. M/J 08/P01/Q2**
(a) 6.7 oe 1 (b) (0).051 oe 1
- 52. M/J 08/P01/Q5**
(a) 160.27 1 (b) 6820 1