

Cambridge IGCSE

MATHEMATICS

0606 - P3

2020 - 2024

QUESTIONS + ANSWERS

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1 - (0580/31_Summer_2020_Q1) - Percentages, Ratio And Proportion

Gabriela designs the seating layout for a new theatre.
There are three sections of seats, A, B and C.

- (a) Section A has 152 seats.
Section B has 12.5% more seats than Section A.
Section C has $\frac{3}{8}$ of the number of seats in Section A.

(i) Show that the number of seats in Section B is 171.

[1]

(ii) Show that the total number of seats is 380.

[2]

(b) Write down and simplify the ratio of the number of seats in each section A : B : C.

A : B : C = : : [2]

(c) In Section A:

- There are 12 seats in the front row.
- Each row has 2 more seats than the row in front of it.

Work out the number of rows for the 152 seats in Section A.

..... rows [2]

- (d) For a concert in the theatre, the ticket prices are in the ratio

$$A : B : C = 9 : 7 : 4.$$

A ticket for Section C costs \$6.

- (i) Show that a ticket for Section B costs \$10.50 .

[1]

- (ii) Find the cost of a ticket for Section A.

\$ [1]

- (iii) The table shows the number of tickets sold in each section.

Section	Number of tickets sold
A	120
B	136
C	30

Calculate the total amount received from the ticket sales.

\$ [3]

- (iv) The concert costs \$4500 to organise.

Calculate the amount received from the ticket sales as a percentage of the \$4500.

..... % [1]

2 - (0580/31_Summer_2020_Q5) - Number Facts

(a) Using the integers from 60 to 75 only, find

(i) a multiple of 17,

..... [1]

(ii) the prime numbers.

..... [2]

(b) Find

(i) the square root of 4489,

..... [1]

(ii) 4^3 ,

..... [1]

(iii) $\sqrt[3]{274\,625}$,

..... [1]

(iv) $2^{-3} \times 24^2$.

..... [1]

- (c) Write down the reciprocal of 7.

..... [1]

- (d) Write 3.72194 correct to 3 decimal places.

..... [1]

- (e) Find the lowest common multiple (LCM) of 8 and 14.

..... [2]

- (f) The average temperature at the North Pole is -23°C in January and -11°C in March.

- (i) Find the difference between these temperatures.

..... $^{\circ}\text{C}$ [1]

- (ii) The average temperature in July is 28°C higher than the average temperature in March.

Find the average temperature in July.

..... $^{\circ}\text{C}$ [1]

3 - (0580/32_Summer_2020_Q1) - *Number Facts, Statistics*

- (a)** Paul has a set of 8 cards, each with a number written on it.
The numbers on the cards are 1, 1, 2, 3, 3, 3, 4, 5.
One card is taken at random.

Write down the probability that the number on the card is

- (i)** 1,

..... [1]

- (ii)** an odd number,

..... [1]

- (iii)** a prime number,

..... [1]

- (iv)** a number less than 6.

..... [1]

- (b)** Dina has a set of 12 cards.
These are the numbers on the cards.

3 4 1 3 2 1 3 4 2 2 1 3

Work out

- (i)** the median,

..... [2]

- (ii)** the mode,

..... [1]

- (iii)** the mean,

..... [2]

- (iv)** the range.

..... [1]

- (c) Helena has a different set of cards.
She takes one card at random and records the number shown.
She does this 50 times.
The results are shown in the table.

Number on card	Frequency
1	8
2	11
3	10
4	9
5	12

Calculate the mean of her results.

..... [3]

ANSWERS

1 - (0580/31_Summer_2020_Q1) - Percentages, Ratio And Proportion

(a)(i)	$112.5 \div 100 \times 152$ oe	1	
(a)(ii)	$3 \div 8 \times 152 + 152 + 171$	2	B1 for $3 \div 8 \times 152$
(b)	8 : 9 : 3	2	B1 for 152 : 171 : 57
(c)	8	2	M1 for correct attempt e.g. $12 + 14 + 16 \dots$
(d)(i)	$6 \div 4 \times 7$	1	
(d)(ii)	13.50	1	
(d)(iii)	3228	3	FT <i>their</i> (d)(ii) M2 for $120 \times \text{their (d)(ii)} + 136 \times 10.5 + 30 \times 6$ or B1 for <i>their</i> 1620 or 1428 or 180
(d)(iv)	71.7 or 71.7[3.....]	1	FT <i>their</i> (d)(iii)

2 - (0580/31_Summer_2020_Q5) - Number Facts

(a)(i)	68	1	
(a)(ii)	61, 67, 71, 73	2	B1 for 3 correct and none incorrect or 4 correct and one incorrect
(b)(i)	67	1	
(b)(ii)	64	1	
(b)(iii)	65	1	
(b)(iv)	72	1	
(c)	$\frac{1}{7}$	1	
(d)	3.722	1	
(e)	56	2	B1 for $56k$ or lists of multiples of 8 and 14 (at least 3 of each)
(f)(i)	12	1	
(f)(ii)	17	1	

3 - (0580/32_Summer_2020_Q1) - Number Facts, Statistics

(a)(i)	$\frac{1}{4}$ oe	1	
(a)(ii)	$\frac{3}{4}$ oe	1	
(a)(iii)	$\frac{5}{8}$	1	
(a)(iv)	1	1	
(b)(i)	2.5	2	M1 for ordering the numbers to the middle two e.g. 1 1 1 2 2 2 3 or 2 3 3 3 3 4 4 or B1 for 2 and 3 identified
(b)(ii)	3	1	
(b)(iii)	2.42 or 2.416 to 2.417 or $2\frac{5}{12}$	2	M1 for $(1 + 1 + 1 + 2 + 2 + 2 + 3 + 3 + 3 + 3 + 4 + 4) \div 12$
(b)(iv)	3	1	
(c)	3.12	3	M1 for $1 \times 8 + 2 \times 11 + 3 \times 10 + 4 \times 9 + 5 \times 12$ soi 156 M1dep for <i>their</i> $156 \div 50$

4 - (0580/32_Summer_2020_Q2) - Number Facts, Speed, distance And Time, Percentages

(a)	150	3	M2 for $9 \times 14 + 3 \times 8$ oe or M1 for 9×14 or 3×8 oe
(b)	2	2	M1 for $120 - (53 + 65)$ oe
(c)	18 32	4	M1 for $8352 \div 783$ A1 for 10 h 40 min M1 for the correct adjustment of the 2 hours
(d)	26	2	M1 for 2050×0.0125 soi 25.625
(e)	788.8[0]	2	M1 for $680 \times (1 + \frac{16}{100})$ oe