



PRESBYTERIAN HIGH SCHOOL
2023 TERM ONE WEIGHTED ASSESSMENT
SECONDARY ONE
MATHEMATICS G3 (4052)

Name: _____ () Class: 1 _____

Duration: 45 minutes

Date: 14 February 2023

Instructions to Candidates:

Write your name, class and index number on this cover page.

Answer ALL questions on the space provided.

All essential workings must be shown in ink. Omission of essential working may result in loss of marks.

INFORMATION FOR CANDIDATES:

The number of marks is given in brackets [] at the end of each question or part question.

You should not spend too much time on any one question.

Electronic calculators are allowed in this paper.

Do not open this question paper until you are told to do so.

Setter: Mdm Chung Bee Chee
Vetter: Mdm Herlina

For Examiner's Use
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This paper consists of **8** printed pages (including this cover page) and **0** blank page.

Answer **all** the questions.

- 1 (a) Express $\frac{3}{11}$ as a recurring decimal.

Answer [1]

- (b) Choose a symbol from the list below to make a correct statement.

< = >

Answer 2.7 -4 [1]

- 2 The altitudes of some places are as follows:

Location	Altitudes
Dead Sea	– 430 m
Lake Assal	– 153 m
Mexico City	2240 m
Mount Everest	8848 m
Westmorland	– 48 m

- (a) List the places that are above sea level.

Answer [1]

- (b) Calculate the difference in altitude between Lake Assal and Dead Sea.

Answerm [1]

3

$$\pi, \quad -1\frac{3}{7}, \quad (-1.4)^2, \quad \sqrt{2}, \quad 1.4\mathrm{i}$$

- (a)** List all the irrational number(s).

Answer [1]

- (b)** Arrange the numbers in ascending order.

Answer [2]
(smallest) (largest)

- 4 n is a number with two decimal places.
When n is rounded off to 1 decimal place, the value is 8.3.
Write down the smallest and the largest possible values of n .

Answer Smallest $n =$

Largest $n =$ [2]

5 Calculate $\frac{3.5^3}{\sqrt{6\frac{7}{12}+0.8}}$.

(a) Write down the first five digits of your answer.

Answer [1]

(b) Write your answer to **part (a)** correct to 3 significant figures.

Answer [1]

- 6 When expressed as the product of its prime factors, $2160 = 2^4 \times 3^3 \times 5$.
The lowest common multiple of 144 and integer x is 2160.
Find the smallest value of x .

Answer $x =$ [2]

- 7 **(a)** Find the cube of $3^2 \times 5^4$, leaving your answer in index notation.

Answer [1]

- (b)** Find the positive square root of the result in **part (a)**. Show your workings clearly.

Answer [2]

- (c)** Find the smallest positive integer k such that $3^2 \times 5^4 \times k$ is a perfect cube.

Answer $k =$ [1]

- 8 (a) Express 108 as the product of its prime factors in index notation.

Answer [2]

- (b) Explain why 108 is not a square number.

Answer
 [1]

- (c) There are 108 oranges and 56 apples.
 Miss Lim wants to pack each type of fruits equally into identical boxes.
 Find

- (i) the largest number of boxes that can be packed,

Answerboxes [1]

- (ii) the number of oranges in a box.

Answeroranges [1]

- 9 Evaluate the following without the use of calculator. Show your workings clearly.

(a) $[(-4)^2 + (-12)] \times (-3)$

Answer [2]

(b) $\left(\frac{2}{5} - \frac{1}{8}\right) \times \frac{10}{7} \div 2\frac{13}{21}$

Answer [3]

- 10 A water tank is $\frac{3}{5}$ full.

$\frac{4}{25}$ of the water in the tank is used.

There are now 567 litres of water left in the tank.
Calculate the capacity of the tank when full.

Answer litres [3]

END OF PAPER

2023 Sec 1 Mathematics G3 Term 1 WA

1(a) $\frac{3}{11} = 0.\dot{2}\dot{7}$

1(b) $2.7 > -4$

2(a) Mexico City, Mount Everest

2(b) Difference
 $= (-153) - (-430)$
 $= -153 + 430$
 $= 277 \text{ m}$

3(a) $\sqrt{2}, \pi$

3(b) $-1\frac{3}{7}, 1.4\dot{1}, \sqrt{2}, (-1.4)^2, \pi$

4 Smallest $n = 8.25$
 Largest $n = 8.34$

5(a) 15.778

5(b) 15.8

6 $144 = 2^4 \times 3^2$
 $x = 3^3 \times 5 = 135$
 $\text{LCM} = 2^4 \times 3^3 \times 5$

7(a) Cube of $3^2 \times 5^4$
 $= (3^2 \times 5^4)^3$
 $= (3^2 \times 5^4)(3^2 \times 5^4)(3^2 \times 5^4)$
 $= (3^6 \times 5^{12})$

7(b) $\sqrt{(3^6 \times 5^{12})}$
 $= \sqrt{(3^3 \times 5^6)(3^3 \times 5^6)}$
 $= (3^3 \times 5^6)$
 $= 421875$

$$\begin{aligned}
 7(c) \quad & 3^2 \times 5^4 \times k \\
 & = (3 \times 5^2)(3 \times 5^2)(3 \times 5^2) \\
 & k = 3 \times 5^2 \\
 & k = 75
 \end{aligned}$$

$$8(a) \quad 108 = 2^2 \times 3^3$$

8(b) Not all prime factors of 108 have power that is multiple of 2

$$\begin{aligned}
 8c(i) \quad & 108 = 2^2 \times 3^3 \\
 & 56 = 2^3 \times 7 \\
 & \text{HCF} = 2^2 \\
 & \text{Largest number of boxes} = 4
 \end{aligned}$$

$$\begin{aligned}
 8c(ii) \quad & \text{No. of oranges in a box} \\
 & = 108 \div 4 \\
 & = 27
 \end{aligned}$$

$$\begin{aligned}
 9(a) \quad & [(-4)^2 + (-12)] \times (-3) \\
 & = [16 - 12] \times (-3) \\
 & = [4] \times (-3) \\
 & = -12
 \end{aligned}$$

$$\begin{aligned}
 9(b) \quad & \left(\frac{2}{5} - \frac{1}{8}\right) \times 1\frac{3}{7} \div 2\frac{13}{21} \\
 & = \left(\frac{16-5}{40}\right) \times \frac{10}{7} \div 2\frac{13}{21} \\
 & = \left(\frac{11}{40}\right) \times \frac{10}{7} \div 2\frac{13}{21} \\
 & = \frac{11}{28} \div \frac{55}{21} \\
 & = \frac{11}{28} \times \frac{21}{55} \\
 & = \frac{1}{4} \times \frac{3}{5} \\
 & = \frac{3}{20}
 \end{aligned}$$

$$\begin{aligned}
 10 \quad & \text{Fraction of water not used} \\
 & = \frac{3}{5} \times \left(1 - \frac{4}{25}\right)
 \end{aligned}$$

$$= \frac{63}{125}$$

Capacity of full tank

$$= 567 \div \frac{63}{125}$$

$$= 1125 \text{ litres}$$