

SUBJECT: MATHS

Contents:

Unit 1. Number and calculation

- ✓ 1.1. Irrational numbers (p.9-13)
- ✓ 1.2. Standard form (p.14-16)
- ✓ 1.3. Indices (p.17-19)

Unit 2. Expressions and formulae

- ✓ 2.1. Substituting into expressions (p.21-27)
- ✓ 2.2. Constructing expressions (p.27-33)
- ✓ 2.3. Expressions and indices (p.33-38)
- ✓ 2.4. Expanding the product of two linear expressions (p.38-42)
- ✓ 2.5. Simplifying algebraic fractions (p.43-48)
- ✓ 2.6. Deriving and using formulae (p.48-53)

Unit 3. Decimals, percentages and rounding

- ✓ 3.1. Multiplying and dividing by powers of 10 (p.55-63)
- ✓ 3.2. Multiplying and dividing decimals (p.63-68)
- ✓ 3.3. Understanding upper and lower bounds (p.68-74)
- ✓ 3.4. Understanding upper and lower bounds (p.75-80)

Unit 4. Equations and inequalities

- ✓ 4.1. Constructing and solving equations (p.83-89)
- ✓ 4.2. Simultaneous equations (p.89-96)
- ✓ 4.3. Inequalities (p.97-102)

Instructions:

- 1) Students **MUST** complete the study guide before revision classes.
- 2) Students are **ALLOWED** to use calculators for problem-solving tasks.

PART 1. MATHEMATICAL TERMS

NO.	TERMS	UNITS	DEFINITIONS	VIETNAMESE TRANSLATIONS
1	irrational number	1.1		
2	rational number	1.1		
3	surd	1.1		
4	scientific notation	1.2		
5	standard form	1.2		
6	index	1.3		
7	counter-example	2.1		
8	in terms of	2.2		
9	brackets	2.4		

10	difference of two squares	2.4		
11	expand	2.4		
12	perfect square	2.4		
13	algebraic fraction	2.5		
14	changing the subject	2.6		
15	subject of a formula	2.6		
16	equivalent calculation	3.2		
17	compound percentage	3.3		
18	lower bound	3.4		
19	upper bound	3.4		
20	construct (algebra)	4.1		
21	sector	4.1		
22	solve	4.1		
23	method of elimination	4.2		
24	method of substitution	4.2		
25	simultaneous equations	4.2		
26	inequality	4.3		
27	solution set	4.3		

PART 2. EXERCISES

Question 1

$$\frac{1}{16} = 4^{\boxed{}}$$

Question 2

Enter the missing *index*.

$$15^{10} \div 15^2 = 15^{\boxed{}}$$

Question 3

$$5^2 \times 5^3 \times 5^{-5} = 5^{\boxed{}}$$

$$= \boxed{}$$

Question 4

Enter the missing *index*.

$$4^8 \times 4^5 \div 4^6 = 4^{\boxed{}}$$

Question 5

$$\text{When } x = 3, \quad 5^{-x} = \frac{\boxed{}}{\boxed{}}$$

Question 6

$$7^3 \times 7^x = 7^9$$

$$x = \boxed{}$$

Question 7

Using your calculator, experiment with values to find the missing index.

$$3^{\boxed{}} = 59\,049$$

Question 8

Complete the working.

$$y - 7 > 15$$

$$y > \boxed{}$$

Question 9

The solution to the inequality $4 \leq 2n \leq 6$ is:

$$\boxed{} n \leq \boxed{}$$

Question 10

Solve $k - 7 > 10$

$$k > \boxed{}$$

Question 11

Solve the inequality $\frac{x}{5} - 4 \leq 6$

$$x \leq \boxed{}$$

Question 12

The solution to the inequality $5(h + 2) > 45$ is:

$$h > \boxed{}$$

Question 13

Solve $8k - 14 < 5k + 7$

$$k < \boxed{}$$

Question 14

A regular pentagon has sides of length $6x - 5$.

What is the perimeter of the pentagon?

$$\boxed{} \times \boxed{} \boxed{}$$

Question 15

A rectangle has length $5x + 2$ and perimeter $12x + 6$.

What is the width of the rectangle?

$$\boxed{} + \boxed{}$$

Question 16

An equilateral triangle has perimeter $12x + 21$.

What is the length of each side?

$$\boxed{} \times + \boxed{}$$

Question 17

A rectangle has length $(x + 2)$ and width $3x$.

The perimeter of the rectangle is given by $\boxed{}x + \boxed{}$

Question 18

$$C = \frac{5(F - 32)}{9}$$

This formula converts degrees Fahrenheit into degrees Celsius.

Use it to convert 23°F into degrees Celsius.

$$23^\circ\text{F} = \boxed{}^\circ\text{C}$$

Question 19

The width of a rectangle is x cm.

The length of the rectangle is four times the width.

Complete this expression for the perimeter of the rectangle.

$$\text{Perimeter} = \boxed{}x \text{ cm}$$

Question 20

The length of a rectangle is y cm.

The width of the rectangle is three centimetres less than the length.

Complete this expression for the perimeter of the rectangle.

$$\text{Perimeter} = (\square y - \square)\text{cm}$$

Question 21

How much will \$56 000 be after an increase of 8% each year for 3 years?

$$\text{Amount} = \$ \square$$

Question 22

The population of a town was 120 000 at the end of 2020.

If the population grows by 4% each year, calculate the expected population at the start of 2024 (to the nearest person).

$$\text{Population} = \square$$

Question 23

Maia bought a house worth \$956 000. In the first year she owned it, the house increased in value by 15%, but then in the following year it decreased in value by 22%.

What is her house worth now?

$$\$ \square$$

Question 24

What is \$500 decreased by 10% and then increased by 10%?

$$\$ \square$$

Question 25

What is 40 increased by 15% and then increased by 25%?

$$\square$$

Question 26

A tomato plant is 25 cm tall when it is planted in the garden.
It grows by 30% in the first week and then by 18% in the second week.
During the third week it grows by only 5%.

How tall is the plant after three weeks in the garden, to the nearest centimetre?

cm

Question 27

Hailey thinks of a number, doubles it and adds 5 to get 17.
What was the number Hailey thought of?

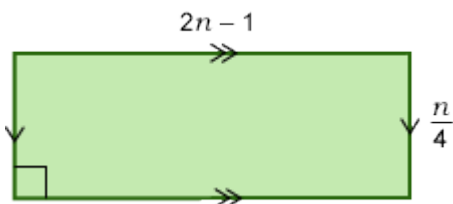
Question 28

Each term in a series is half the previous term. If the first term is $(3p - 4)$ and the sum of the first three terms is 98, what is the value of p ?

$p =$

Question 29

Shana thought of a number. First she multiplied it by 6, then she added 5, divided by 2 and finally subtracted 3 to get 10.
What is Shana's number?

Question 30

The perimeter of the rectangle is 7 cm.

Find the length of the shorter sides.

Length of a shorter side = cm

Question 31

A tin contains 204 sweets.

It is shared equally between a group of x friends.

Each person gets 12 sweets.

How many people shared the sweets?

people

Question 32

What is the solution to $y = x$ and $x + 2y = 18$?

Solution is $x =$, $y =$

Question 33

What is the solution to the equations $y = 1 + x$ and $y = 4 - 2x$?

The solution is $x = 1$, $y =$

Question 34

What is the solution to $x = 3y - 7$ and $5x + 2y = -1$?

$x =$, $y =$

Question 35

What is the solution to $3x - 4y = 2$ and $y = 2x - 3$?

The solution is $x =$, $y =$