

PENANG SANGAM HIGH SCHOOL
DEPARTMENT OF MATHEMATICS/ PHYSICS
MATHEMATICS- YEAR 11

Week 6

ALGEBRA

1. The **solution** set of $x^2 = 4$ is

- A. $\{2, 4\}$
- B. $\{-2, 2\}$
- C. $\{-2, 4\}$
- D. $\{-4, 4\}$

2. $3 + x + x$ is equal to

- A. $5x$
- B. $3x^2$
- C. $3 + 2x$
- D. $3 + x^2$

3. $\frac{y}{2} + \frac{3}{2} =$

- A. $\frac{y+3}{2}$
- B. $\frac{y+3}{4}$
- C. $\frac{3y}{2}$
- D. $\frac{3y}{4}$

4. Calculate the value of $\sum_{n=1}^3 (3n+2)$

5. Solve $|x - 2| = 5$

6. Solve $\frac{x-1}{3} = \frac{1-x}{4}$

7. Solve the inequality $5 - 3x < 8$

8. Expand and simplify $(5x-2)-3(x-5)$

Hint: Use Distributive Property .Note only like terms can be added or subtracted

9. Evaluate $\begin{pmatrix} 1 & 1 \\ 3 & -4 \end{pmatrix} \begin{pmatrix} 2 & -2 \\ 0 & 6 \end{pmatrix}$

10. Matrix $M = \begin{pmatrix} -9 & 1 \\ -1 & -1 \end{pmatrix}$

- (i) What is the **order** of M?
- (ii) Calculate its **determinant**.
- (iii) Find its **multiplicative** inverse.
- (iv) Evaluate $2M$

Hint: Formula

1. **Determinant:** $|P| = ad - bc$

2. **Inverse:**

$$\frac{1}{ad-bc} \begin{bmatrix} d \\ -c \end{bmatrix}$$

determinant.

11. An arithmetic sequence has 2nd term = 10 and common difference = 2.

- (i) Find the first term.
- (ii) What is the sum of the first 20 terms?

Hint: Formula

Arithmetic Sequence

1. $T_n = a + (n-1)d$

2. $S_n = \frac{n}{2}[2a + (n-1)d]$

12. A geometric sequence is given as 1, 5, 25, 125,

- (i) Calculate the common ratio.
- (ii) Find the 9th term.
- (iii) What is the sum of the first 10 terms?

Hint: Formula

Geometric Sequence

1. $T_n = ar^{n-1}$

2. $S_n = \frac{a(1-r^n)}{1-r}$

THE END

