

iv) Which option is better? Explain your answer.

(1 mark)

STRAND 2: ALGEBRA

1. $X^2 - 36$ when factorized will be equal to:

A. $(X - 36)^2$

B. $(X - 6)(X + 6)$

C. $(X - 6)(X - 6)$

D. $(X + 6)(X + 6)$

2. The discriminant of the expression $x^2 - 3x - 4$ is

A. -10

B. -7

C. 10

D. 25

3. Given $f(x) = 3x^2 + 3x + 1$, the nature of the roots of $f(x)$ is

A. One real root

B. No real root

C. Two distinct real roots

D. None of the above

4. Solve $12 - 4x \leq 8$

(2 marks)

5. Evaluate $\sum_{r=3}^6 (2 - r^2)$

(2 marks)

6. Use the quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ to solve the equation $1.6x^2 - 8.2x - 4.2 = 0$. Give the answers correct to 2 decimal places.

(2 marks)

7. A function is given as $f(x) = x^3 - 6x^2 + 11x - 6$.

(i) Show that $(x - 3)$ is a factor of $f(x)$.

(1 mark)

(ii) Find the other two factors of $f(x)$.

(2 marks)

8. The third term of an arithmetic sequence is 12 and the ninth term is 20.

(i) Using $T_n = a + (n - 1)d$, find an expression for the third term and one for the ninth term. (2 marks)

(ii) By solving the two equations from (i) above, find the first term (a) and the common difference (d) for the sequence. (2 marks)

9. Simplify: $\frac{3}{x-2} - \frac{2}{x+2}$

(2 marks)

