BA SANGAM COLLEGE YEAR 12 MATHEMATICS WORKSHEET 4

STRAND 1: BASIC MATHEMATICS II

1.

2.

- $\frac{2\log 9}{4\log 3}$ is equivalent to A. $\frac{1}{2}\log 3$ B. log 1 1 C. 0 D. $64^{\overline{3}}$ has the value $42\frac{2}{3}$ A. 16 B. C. 96 512 D.
- 3. A credit card will attract a high interest rate. This is because:
 - A. It does not have a bank account with it.
 - B. The customer can pay it off at any time.
 - C. Credit cards are unsecured lending.
 - The credit card is usually only for small amounts of credit. D.
- The table given below shows the result of a binary operation * on set $S = \{p, q, r, s\}$ 4.

*	р	q	R	S
р	r	S	Р	q
q	S	р	Q	r
r	р	q	R	S
S	q	r	S	р

Is this system a group? Give the 4 reasons. $\frac{\sqrt{2}}{\sqrt{3}+\sqrt{2}}$

5. Simplify

Sera wants to buy a washing machine. The two options available to her are: 6.

OPTION 1	OPTION 2
Cash Sale - \$2500	Cash Sale - \$2500
Deposit - \$0	Deposit - 25%
Instalments - \$120 monthly	Instalments - \$85 monthly

- Calculate the total monthly instalments for two years for both the options. i)
- Find the total hire purchase price to be paid. ii)
- How much extra is paid for both options? iii)

(2 marks)

(2 marks)

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.-10B.-7C.10D.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 $12 4x \le 8$ (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.

- 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)

(2 marks)