STRAND 1: BASIC MATHEMATICS

2020

1. Aesake bought a guitar on the following terms:
   - $0 deposit
   - 10 monthly installments of $55

   The total amount he paid for the guitar was

   A. $55
   B. $65
   C. $550
   D. $560

2. The expression $\log 8 + \log 4$ can be simplified to
   A. log 2
   B. log 4
   C. log 12
   D. log 32

3. $\sqrt{18}$ is equal to
   A. $3\sqrt{2}$
   B. $9\sqrt{2}$
   C. $6\sqrt{3}$
   D. $3\sqrt{6}$

4. Solve $2^{x+1} = 4$
5. The table shows addition modulo 3.

+	0	1	2
0	0	1	2
1	1	**p**	**q**
2	2	**r**	**s**

   a) State the identity element.
   b) Find the values of p, q, r, and s.

6. Simplify $\dfrac{9^x}{3^x}$

7. Simplify $\dfrac{1}{2-\sqrt{3}}$ by rationalizing the denominator.

2019

1. Which of the following statements is/are correct?
   i.   Credit cards can be used to obtain cash advance.
   ii. Payments made with a debit card are immediately deducted from the person's bank account.
   iii. Debit cards cannot be used to withdraw cash.

   A. ii only
   B. i and ii only
   C. i and iii only
   D. ii and iii only

2. If $\log k = -4$, then $\dfrac{\log k^2}{2}$
   A. -8
   B. -4
   C. 8
   D. 16

3. $\sqrt{4^{16x^2}}$ is equal to
   A. 2^{4x}
   B. 2^{8x^2}
   C. 4^{4x}
   D. 4^{8x^2}

4. Solve $7^{5x+3} = 512$
5. Study the operation table for {0, 1, 2, 3} shown below and then answer the questions that follow.

×	0	1	2	3
0	0	0	0	0
1	0	1	2	3
2	0	2	0	2
3	0	3	2	1

   a) The table above shows multiplication in modulo k. What is the value of k?
   b) Give the identity element.
   c) The above table does not represent a group. Give a reason for this.

6. Express $\sqrt{3} + \sqrt{12} + \sqrt{27}$ in the form $w\sqrt{3}$, where w is an integer.

7. Simplify $\dfrac{5+\sqrt{5}}{1+\sqrt{5}}$