

APRIL 2019 VACATION SCHOOL WORKSHEET

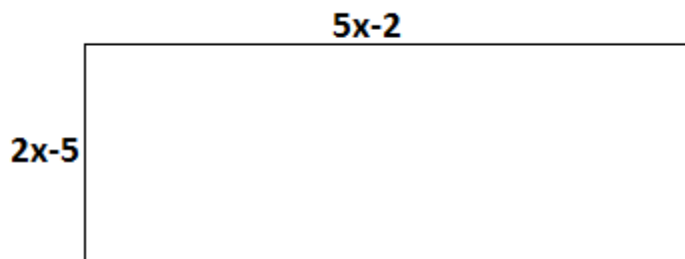
QUESTION 1 [48 MARKS]

- 1.1 The expression $xy - 5x - xy + 5x - 1$ simplifies to: [3]
A. x^2y^2 B. -1 C. $2xy - 1$ D. $10x - 1$
- 1.2 Given that $x = 5$ and $y = -3$ calculate the value of z if $z = xy^2 - 2y$. [3]
A. -42 B. 51 C. 39 D. 231
- 1.3 The lowest common multiple (LCM) for 20, 280 and 220 is: [3]
A. 1540 B. 6160 C. 770 D. 3080
- 1.4 The factors for the quadratic expression $x^2 + 3x - 10$ are: [3]
A. $(x - 2)(x + 5)$ B. $(x - 2)(x - 5)$ C. $x(x + 3) - 10$ D. $(x - 1)(x + 10)$
- 1.5 Factorize by grouping the expression $ax + by + bx + ay$. [3]
A. $(x + y)(a + b)$ B. $(x - y)(a - b)$ C. $x(a + b) - ab$ D. $(x - y)(a + b)$
- 1.6 Mary received N\$24000 from her mother. She used a quarter of her money to buy furniture and saved a third of the money in her bank account. She used the remaining amount to pay for her school fees. How much did she spend on school fees? [3]
A. N\$18000 B. N\$12000 C. N\$6000 D. N\$10000
- 1.7 Simplify $x^2 \times \sqrt{y} \times \sqrt[2]{x^4} \times y^{\frac{1}{2}}$. [3]
A. $y\sqrt{x}$ B. $xy^{\frac{1}{2}}$ C. $xy^{\frac{1}{4}}$ D. x^4y
- 1.8 The solution to the equation $5x - 7 + x = 4x + 25$ is: [3]
A. $x = 5$ B. $x = 3$ C. $x = 15$ D. $x = 16$
- 1.9 Evaluate $\log_2 16 + \log_3 27 + \log 1$. [3]
A. 4 B. 3 C. 7 D. 8

- 1.10 The simultaneous solution to the equations $2x - y = 5$ and $x + y = 4$ is: [3]
 A. $x = 2$ and $y = 3$ B. $x = 3$ and $y = 0$ C. $x = 3$ and $y = 1$ D. $x = 0$ and $y = 1$
- 1.11 The solution to the quadratic equation $x^2 + 6x + 9 = 0$ is: [3]
 A. $x = -3$ B. $x = 3$ C. $x = 3$ and $x = 6$ D. $x = 1$ and $x = 9$
- 1.12 The 50th term of the progression 2, 6, 10, 14, ... is: [3]
 A. 49 B. 198 C. 204 D. 50
- 1.13 The 20th term of the progression 3, 6, 12, 24, ... is: [3]
 A. 3145728 B. 41 C. 1572864 D. 524291
- 1.14 Last year a BMW car sold for N\$105000. This year, the price has gone down by 0,5%. How much does a BMW car cost this year? [3]
 A. N\$99750 B. N\$100000 C. N\$104475 D. N\$104947.50
- 1.15 Calculate the maturity value of an investment of N\$30000 due in 5 years when the annual simple interest rate is 16%. [3]
 A. N\$54000 B. N\$24000 C. N\$63010.25 D. N\$2400000
- 1.16 Evaluate $\sum_{i=1}^3 2i$. [3]
 A. 48 B. 24 C. 6 D. 12

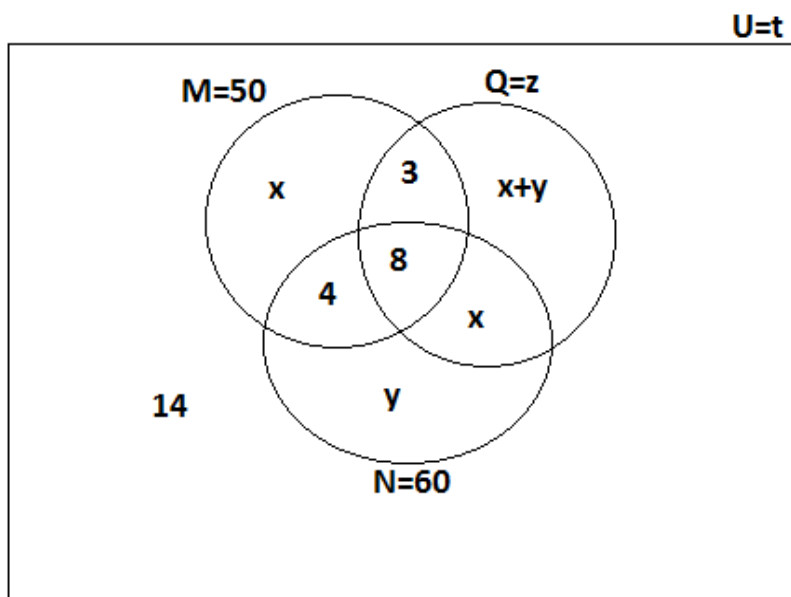
QUESTION 2 [52 MARKS]

- 2.1 The formula for a perimeter of a rectangular figure is given as $P = 2L + 2W$ where L is the length of the rectangle and W is the width of the rectangle. Calculate in terms of x the perimeter of the figure below. [6]



2.2 The sets $S = \{1, 2, 3, 4, 5, a, b, c, d, e\}$ $A = \{1, 2, 3, c, d\}$ $B = \{2, 3, a, b\}$ $C = \{1, 4, a, b, d\}$ are given. Draw a Venn diagram and enter the elements of the given sets in their correct places. [10]

2.3 In the following Venn diagram, calculate the values of x, y, z and t . [4]



2.4 Given that $A = \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$ and $B = \begin{pmatrix} -1 & -2 \\ -3 & -4 \end{pmatrix}$, find:

2.4.1 $A + B$ [4]

2.4.2 $-2B$ [4]

2.4.3 AB [4]

2.5 Find the sum of the first 30 terms of the series $3 + 5 + 7 + \dots$ [5]

2.6 Simplify $4^{\log_2} \times 5^{\log_4}$ without using a calculator. [7]

2.7 Simplify the algebraic expression $\frac{1}{1+b} + \frac{b(1-x)}{(1-x)(b^2+2b+1)} + \frac{4-4b}{(2b-1)(b+1)}$. [8]

Others:

1 Simplify $-\frac{2x+(4x-2)^2}{2} + x - (x^2+4)$

2 Simplify $\log_{\frac{3}{4}} \sqrt[3]{\frac{64}{27}}$ without using a calculator.

3 First simplify and then calculate the value of $-x - y^2 + (-x)^2$ given that $x = 2, y = -6$.