

MID TERM III EXAMINATIONS 2019

S.3 MATHEMATICS

Paper 2

TIME: 2 HOURS

INSTRUCTIONS

- Attempt all questions from both sections A and B.

SECTION A

1. Simplify: $\frac{3\frac{1}{6} + 1\frac{2}{3}}{\frac{2}{3} \times \frac{5}{12}}$
2. Find the equation of the line which passes through the point (0,5) and is parallel to line $3x - y = 7$
3. Given $A = 2\pi \sqrt{\frac{C}{B}}$
 - i) Express B in terms of A, π and C
 - ii) Find the value of B if $C = 240$, $\pi = 3.14$ and $A = 12.56$
4. If set $F = \{\text{all factors of } 12\}$ and set $T = \{\text{all triangle numbers less than } 20\}$.
 $F = \{1, 2, 3, 4, 6, 12\}$. Find the number of $F \cap T$. Hence find $n(F \cap T)$
5. Factorise completely $2ab - 3 + 2a - 3b$
6. Express $\frac{1}{\sqrt{5} - \sqrt{2}}$ with a rational denominator
7. The price of an article is shs 24,000. If a discount of 12% is given.
Calculate the selling price of the article
8. If an area of 4cm^2 on a map represents an area of 576 km^2 on land. Find the representative fraction (R.F) of the map.
9. If $a * b = \frac{a}{b} - \frac{b}{a}$ evaluate $\frac{1}{2} * \frac{2}{3}$
10. Use the prime factor method to find the cube root of 3375

SECTION B

11. Points A, B, C and D are oriented on a play ground such that B is at bearing of 000° from point A. point D is at a bearing of 340° from point A, point C is at

a bearing of 070^0 from point B. if distance AD is 100m, AB is 40m and BC is 30m and that 1cm represents 7m.

- a) Draw an accurate diagram to show the relationships between points
- b) The distance between points D and C
- c) Bearing of D from B and C

12. Solve for x and y

$$3x - 5y = 21$$

$$4x + y = 5$$

b) use the method of completing squares to find the value of x

$$2x^2 + x - 6 = 0$$

13. An agent sells goods for the company and gets 10% commission on the first 1,000,000 selling price of the goods and 20% on the remainder. In one week he earns 4,000,000 as a commission. What was the value of the goods he sold during the week?

b) Mr. Ssembajjwe bought 3 cows at 580,000 each. He sold one at 15% profit, the second at 10% profit and the third at a loss of 12%. Find his percentage profit on the whole deal?

14. A group of 100 vacists from a certain school were asked whether they had been to universities of Makerere, Kyambogo or Mbale. The inquiry showed that 50 vacists had been to only one of the three universities. The number of those who had been to Mbale alone exceeded those who had been to Kyambogo alone by 2 but was less than who had been to Makerere alone by 4. 16 had been to Makerere and Kyambogo. 14 had been to Kyambogo and Mbale altogether, 4 vacists had been to Makerere university.

a) using an appropriate venn diagram, determine the number of vacists who had been to all the three universities

b) probability that a student picked from the group visited

i) atleast one of the three universities

ii) none of the three universities

*****END*****