

UF DABRI PAST PAPERS

SIR ARTHUR LEWIS COMMUNITY COLLEGE
Division of Agriculture



Final Examinations Semester I – Certificate Students

Course: Elementary Mathematics – MAT101

Date: 06/12/2004

Duration: $2\frac{1}{2}$ Hours

#M19

Answer all Questions



1. a) Evaluate:

$$\frac{5\frac{2}{7} + 3\frac{5}{7}}{4 - 2\frac{4}{5}}$$

State your answer as a fraction and also as a percentage. (5 marks)

- b) Calculate the exact value of: $3.45 \times 4.3 - \frac{6.2}{1.24}$

- Write your answer correct to 1 decimal place
- Write your answer correct to 2 significant figures. (5 marks)

2. a) An item is sold for \$5.35. At that price the seller makes a 7% profit.
- What is the original cost of the item?
 - What should be the selling price if the seller wants to make a 15% profit? (5 marks)

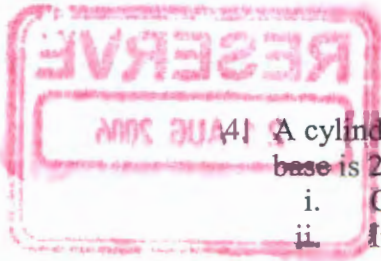
- b) A farmer takes a loan for a period of 2 years at 3% simple interest per annum. If the farmer pays a total of \$39.75 simple interest, what is the sum of money he originally borrowed? (5 marks)

3. a) Mrs. Edwards used 75 cubic metres of water for the first half of 2003. In 2003, the water rate for domestic users for half a year is as follows;
- \$0.75 per cubic metre for the first 60 cubic metres
 - \$0.90 per cubic metre for amounts in excess of 60 cubic metres
 - 10% discount on bills paid before July 14.

Calculate the amount that Mrs. Edwards paid for the half year assuming that the bill was paid before July 14. (5 marks)

- b) A length of rope is 6.4 m long and is divided among three persons in the ratio 1:2:5. Calculate the length of the longest piece. (5 marks)
- c) In digging drains on a farm, 4 men take 28 days. How many days will 7 men take to complete the job? (5 marks)

UP BAKER (LAST PART)



4. A cylindrical shaped tank has a height of 4 metres and the diameter of its circular base is 2.8 metres.
- Calculate the volume of the tank
 - If water enters the tank at a rate of 60 litres per minute, how long will it take for an empty tank to be filled? (1000 litres = 1 cubic metre)
 - If water from the tank is used to irrigate a 1 ha field requiring 2 litres of water per m^2 per day, how many tanks of water are required for irrigation each week? (1 ha = 10,000 m^2) (10 marks)

5. A flowerbed is made in the shape of a circle with diameter of 15 metres. Half of the bed is to be fenced using strands of barbed wire that is sold in 40-meter long rolls.
- Calculate the perimeter of the fenced area
 - How many rolls of wire are required to fence the bed
 - The entire bed is to be covered with topsoil 0.15 m deep. Calculate the quantity of soil needed for the entire bed. (10 marks)

6. a) Simplify the following;
- $4x - 2(x - 2)$
 - $2(x + 3y) + 3x - (y + 5)$
 - $625^{\frac{1}{2}} \times 125^{-\frac{1}{3}}$

- b) Solve for x ;
- $\frac{x}{5} - 5 = \frac{x}{15} + 4$
 - $3^{2x} = 243$ (15 marks)



7. a) A farmer wants to buy ducks and chickens. He has \$780 to spend. The number of chickens bought must be at least twice the number of ducks bought. He has space for 32 birds. If the cost per duck is \$45 and chickens cost \$15 each, write down two inequations to represent the conditions given above. (5 marks)

- b) Solve the simultaneous equation:
- $$\begin{aligned} 2x + y &= 7 \\ 3x - 2y &= 21 \end{aligned}$$
- (10 marks)

8. Factorize the following
- $ab + 2ac - bd - 2dc$
 - $10h^2 - 5h$
 - $1 - 16a^2$ (15 marks)