Sir Arthur Lewis Community College
Division of Agriculture
End of Semester II Examination
Academic year 2002-2003
Associate Degree Programme in Agriculture
Course: Access - Mathematics Mat 005

Date: Thursday May 15, 2003　　　　　　　Duration : 2 ½ hours　　#M12

Answer all the questions

1. Write the following as a single fraction and simplify if possible.

   (a)　$2/y + 1$

   (b)　$3/(y + 3) - 2/3y$

   (c)　$2/(x-2) - 3/(2x)$

   (d)　$2 + (x + 1)/(x - 3)$

   (e)　$(2x/5y)/(1/3x)$

2　Factorize:　(a)　$12x^2 - x - 6$

   (b)　$6x^2 + 5xy - 4y^2$

   (c)　$12x2 + 16x - 3$

3　Divide:　　(a)　$2x^2 + 5x - 12$　by　$x + 4$

   (b)　$6x^2 - 7x + 3$　by　$3x + 1$

4.　solve :　(a)　$x/2 + x/3 = 10$

   (b)　$½ y - 1/3 (y + 3) = 2 - y$

   (c)　$4t^2 - 3 = 0$

   (d)　$2x^2 - 6x + 3 = 0$

5   (a)   A member is required to have a minimum of 20 % of a loan amount saved as shares in the credit union if the loan is secured by a mortgage. If there is no mortgage, he must have at least 1/3 of the loan saved as shares with the credit union. What level of shares does a farmer need to secure a loan of $37545.00

(i) without a mortgage   (ii) with a mortgage.

(b)   For sweet potato production a common fertilizer recommendation is 45 kg nitrogen /ha and 105 kg P_2O_5/ ha. Determine the quantities of calcium ammonium nitrate (26%N) and super phosphate (18% P_2O_5, which should be applied to a sweet potato plot measuring   30 m X 50 m.

6.   The following are the numbers of cracked eggs recorded daily at the SALCC Farm for the first 14 days of April, 2003.

6, 15, 10, 15, 11, 26, 5, 10, 10, 15, 15, 13, 6, 0, 0.

Determine the mean mode and median of the data.

7.   The antibiotic oxytetracycline is used in cattle and swine at a dosage of 9 mg/ lb of body weight. OxyCure 200 ^{TN}, a commercial preparation of the antibiotic, is recommended at 4.5 ml/ 100 lb of body weight.

(a)   How much OxyCure 200 ^{TN} is needed to treat a pig which weighs 37 pounds? What weight of oxytetracycline is in that dose?

(b)   What Volume of OxyCure 200 ^{TN} cure is needed to treat a ram which weighs 64 kg?   (1 kg = 2.2 lbs)

8.   In order to study the yield of a soya variety, the plants were grown spaced out and the yield measured. The yield data (in grams) is presented below. Note that the yield figures are the mid class values of the class intervals.

Yield of spaced soybean plants - source: Steel and Torrie 1980

Yield (g) mid class	3	8	13	18	23	28	33	38	43	48	53	58	63	68
# of plants	7	5	7	18	32	41	37	25	22	19	6	6	3	1

(a)   Rewrite and extend the frequency table to include cumulative frequency (CF) and cumulative frequency percent.

(b)   Plot the Cumulative frequency % curve.

(c)   Use the curve to indicate the median.

(d)   Use the curve to determine what percentage of the plants yielded below the modal weight of beans.