RESULT INTERPRETATION of COLONY COUNTING ON AGAR PLATE

140 MIC

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Serial Dilution Protocol

STEP 1: Determine the appropriate plate for counting:

STEP 2: Determine the total dilution for the dilution tubes:

Dilution factor = amount of specimen transferred divided by the total volume after transfer[amount of specimen transferred + amount of diluent already in tube].

STEP 3: Determine the amount plated (the amount of dilution used to make the particular pour plate or spread plate).

STEP 4: Solve the problem

STEP 1: Determine the appropriate plate for counting:

- Look at all plates and find the one with 30-300 colonies.

- Use the total dilution for the tube from where the plate count was obtained.

- If duplicate plates (**with same amount plated**) have been made from one dilution, average the counts together.

STEP 2: Determine the total dilution for the dilution tubes:

- Determine the dilution factor for each tube in the dilution series.
- Multiply the individual dilution factor for the tube and all previous tubes.

To calculate this dilution series:
Determine the dilution factor of each tube in the set.

$$\text{Dilution factor for a tube} = \frac{\text{Volume of specimen transferred in ml}}{\text{Volume of specimen transferred} + \text{volume of diluent in tube}}$$

But after the first tube, each tube is a dilution of the **previous** dilution tube.

SO…..

Total dilution factor = previous dilution factor of tube **X** dilution of next tube

FOR Example:
If the 1st Dilution Factor= 0.5 ml added to 4.5ml = 0.5/5.0 = 5/50 = 1/10 for 1st tube
The 2nd dilution = 1ml added to 9ml = 1/10 (2nd tube) **X** previous dilution of 1/10 (1st tube) = total dilution of 1/100 for 2nd tube.

STEP 3: Determine the amount plated

- There is nothing to calculate here: the value will be stated in the procedure, or it will be given in the problem.

STEP 4: Solve the Problem
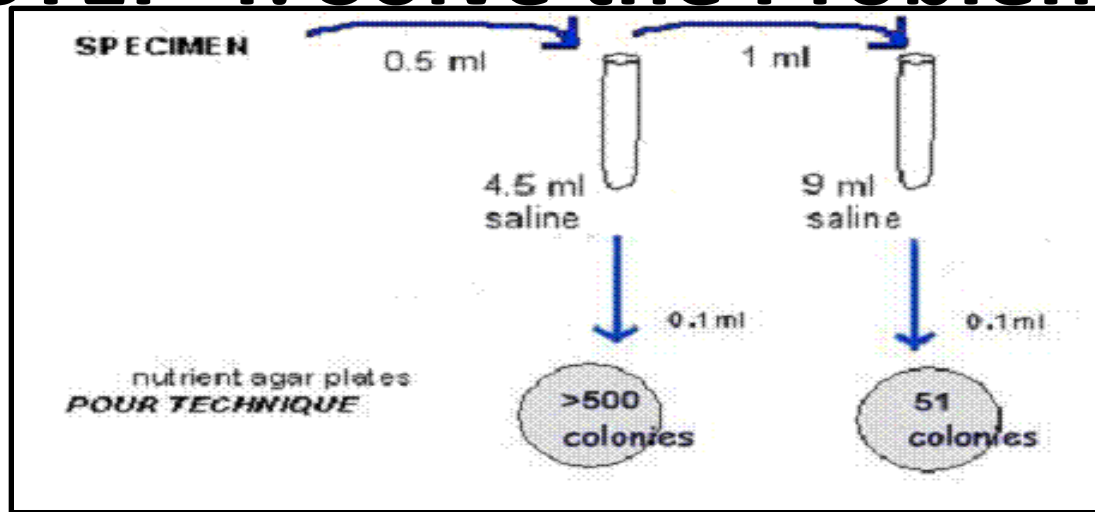
As shown in the example above:

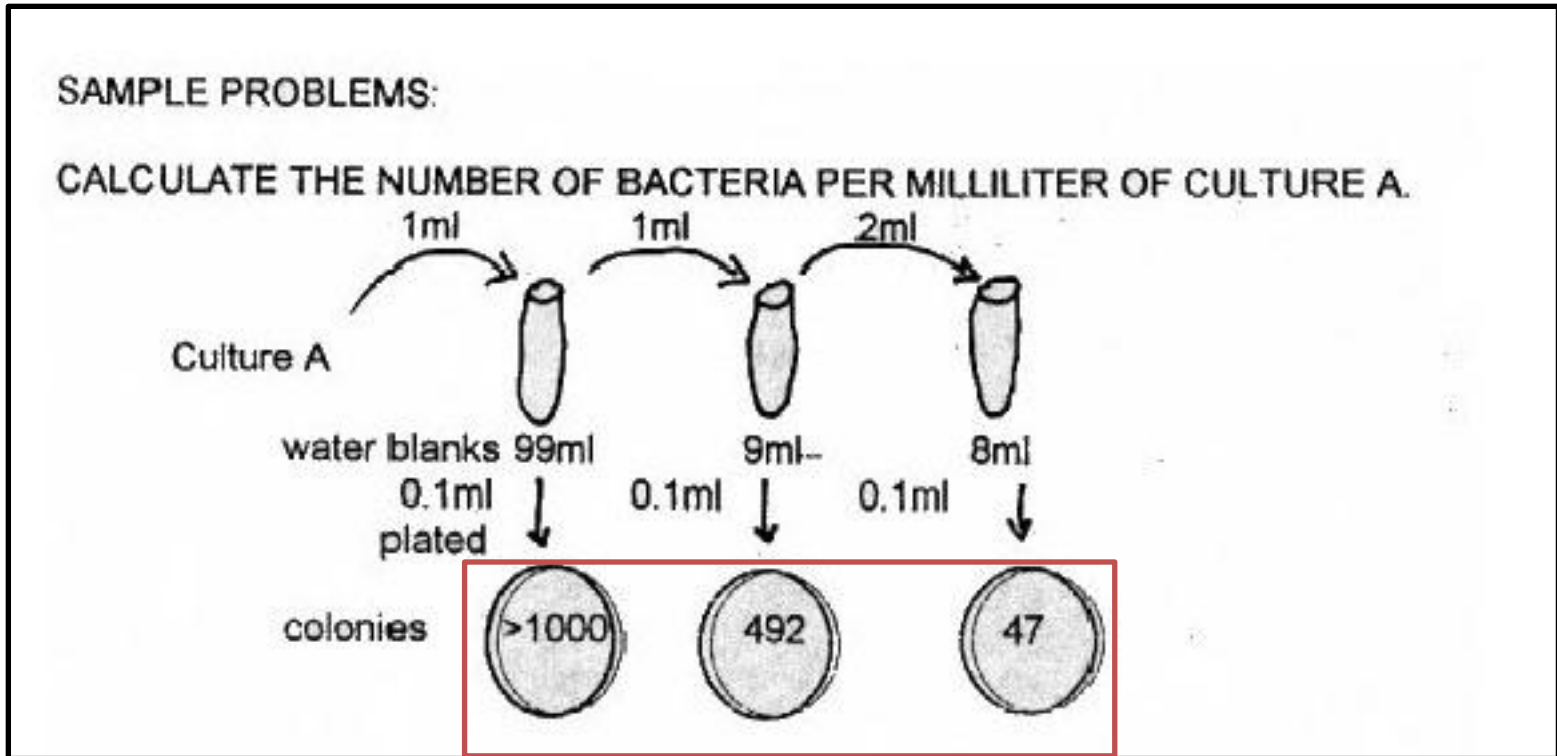The countable plate is the one with **51** colonies.

2. The total dilution of the 2nd tube from which that pour plate was made = $1/10^2$

3. The amount used to make that pour plate = **0.1ml** (convert to 1/10 - it is easier to multiply fractions and decimals together).
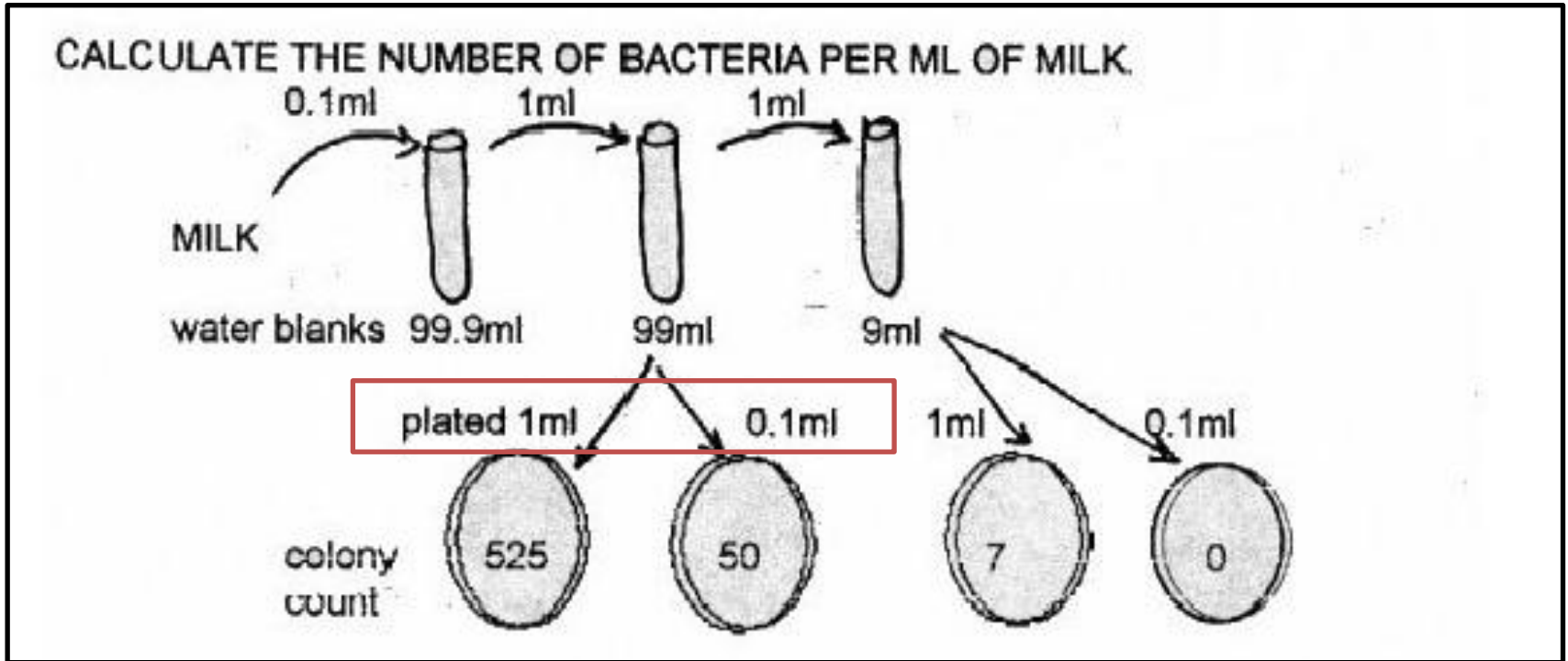
51 colonies = 51 X 10^3 = **5.1 X 10^4** CFU/ml
$1/10^2$ X 1/10

45 colonies = 45 X 10^4 = **4.5 X 10^5** OR **450,000/ml** CFU/ml   **$1/10^3$ X 1/10**

STEP 4: Solve the Problem 1

SAMPLE PROBLEMS:

CALCULATE THE NUMBER OF BACTERIA PER MILLILITER OF CULTURE A.

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STEP 4: Solve the Problem 2

CALCULATE THE NUMBER OF BACTERIA PER ML OF MILK.

STEP 4: Solve the Problem 3

Individual home work:

CALCULATE THE NUMBER OF BACTERIA PER GRAM OF HAMBURGER MEAT.
(1 gram = 1ml)

1gram   0.1ml   1ml

MEAT

water blanks   99ml   99.9ml   9ml

duplicate 1ml samples plated

201   210

colony count