
FFADFCDE07

Step 3. Calculate the value of “other solids” using

dry whey price = \$0.40/lb
make allowance = \$0.195/lb
yield factor = 1.03.

Formula:

“Other solids” value/lb = (dry whey price – make allowance) x yield factor

Solution: (_____ - _____) x _____ = \$ _____ /lb other solids

3. Mark your answer:

- (2) **a. \$0.21** **b. \$0.26** **c. \$0.56** **d. \$0.57**
-

Step 4. Calculate the Class III skim milk price of milk from producer #2994 whose milk tested 3.2% protein and 6.3% other solids. Assume the following prices: protein = \$3.10/lb and other solids = \$0.30 /lb.

Formula:

Class III skim milk price/cwt = (% protein x protein price/lb) + (% other solids x other solids price/lb)

Solution: (_____ x _____) + (_____ x _____) = \$ _____ /cwt Class III skim milk

4. Mark your answer:

- (2) **a. \$5.25** **b. \$8.03** **c. \$11.81** **d. \$12.90**
-

Step 5. Calculate the price per cwt of Class III whole milk by summing the values of the components of milk producer #4425. Use the following data for the calculation:

3.2% protein at \$3.10/lb
3.8% butterfat at \$1.50/lb
6.2% other solids at \$0.25/lb

Formula:

Class III milk price/cwt = (% protein x price/lb) + (% fat x price/lb) + (% other solids x price/ lb)

Solution: (_____ x _____) + (_____ x _____) + (_____ x _____) = \$ _____ /cwt Class III milk

5. Mark your answer:

- (2) **a. \$15.92** **b. \$17.17** **c. \$18.05** **d. \$28.36**

Part 2. Calculate the Price for Class IV milk (used to make butter and nonfat dry milk) by summing the values of Class IV skim milk and butterfat. There are three steps in this problem.

Step 1. Calculate the nonfat milk solids price using

Average NASS price of nonfat dry milk (NDM) = \$2.11/lb

Make allowance = \$0.157/lb

Yield factor = 0.99

Formula:

Nonfat solids price/lb = (NDM price - make allowance) x yield factor

Solution: (_____ - _____) x _____ = \$_____/lb NMS

6. Mark your answer:

- (2) a. \$1.32 b. \$1.93 c. \$3.64 d. \$13.31
-

Step 2. Calculate the value of Class IV skim milk containing 8.8% nonfat solids and the value of those solids is \$2.55/lb.

Formula:

Price of Class IV skim milk = % nonfat milk solids x price/lb of NMS

Solution: _____ x _____ = \$_____/cwt Class IV skim milk

7. Mark your answer:

- (2) a. \$2.24 b. \$28.97 c. \$11.35 d. \$22.44
-

Step 3. Calculate the Class IV milk price using a **skim milk price of 17.10/cwt**. (To obtain lb skim milk/lb milk, subtract from 1 the amount of milk fat (butterfat) in 1 lb of the milk. For example, if the milk fat test is 5%, $1.00 - 0.05 = 0.95$). **Assume a butterfat content of 3.6% and a butterfat price of \$1.60/lb.**

Formula:

Class IV milk price = (lb skim milk/lb milk x price/cwt) + (lb butterfat x price/lb)

Solution: (_____ x _____) + (_____ x _____) = \$_____/cwt Class IV milk

8. Mark your answer:

- (2) a. \$22.24 b. \$22.30 c. \$22.91 d. \$23.48
-
-

Part 3. Use the following values to calculate the prices of milk in Classes I and II. These are **not** the same values that you calculated above.

(NOTE: The Federal Order policy is that the skim milk price for Classes I and II are the higher of skim milk prices of Class III or IV.)

Class III skim milk	\$18.70/cwt	Protein	\$4.20/lb
Class IV skim milk	\$17.80/cwt	Class I differential	\$2.50/cwt
Butterfat	\$2.10/lb	Class II differential	\$1.10/cwt

Step 1. Calculate the value per cwt of Class I milk **containing 3.5%** butterfat.

Formula:

Class I value/cwt = (lb skim milk/lb milk x price/cwt) + (lb butterfat x price/lb) + Class I differential

Solution: (_____ x _____) + (_____ x _____) + _____ = \$_____/cwt **Class I milk**

9. Mark your answer:

- (2) a. \$27.90 b. \$27.02 c. \$26.18 d. \$25.62
-
-

Part 4. Assuming the following utilization percentages and prices for the four classes of milk in the market during the pay period, calculate the individual values of the four classes. Then calculate the overall value per hundred-weight (cwt) of milk from this producer.

Class	Utilization (%)	Price/cwt (\$)	Value (\$)
I	40	22.00	_____
II	15	20.20	_____
III	28	19.50	_____
IV	17	18.80	_____
All milk price/cwt			_____

10. Mark your answer:

- (2) a. \$15.15 b. \$15.49 c. \$20.49 d. \$30.25
-
-

Part 5. You will receive duplicate milk samples to test for titratable acidity. Add 6 drops of the pH indicator, phenolphthalein, and titrate to the first permanent shade of light pink. Choose the answer closest to your test result. You may titrate both samples as a control on your technique.

11. Mark your answer:

- (2) a. 0.15% b. 0.25% c. 0.35% d. 0.45% e. 0.50%
-

Part 6. Calculate the bacterial count per milliliter of the sample given your team in the form of two Petrifilm plates, one representing the 1:100 dilution and the other representing the 1:1000 dilution of the original sample. Count the colonies, select the plate having 25 to 250 colonies and multiply the result by the reciprocal of the dilution used.

12. Mark your answer:

- (2) a. Less than 2,500/mL
 b. 2,500 to 25,000/mL
 c. 26,000 to 50,000/mL
 d. 51,000 to 75,000/mL
 e. 76,000 to 100,000/mL
-

Part 7. A dairyman added 1 fl. oz. of a 10% stock solution of sodium hypochlorite (NaOCl) to 5 gallons (1 gal equals 128 fl. oz.) of water. Use the following formula to calculate the concentration in parts per million (ppm) of the resulting sanitizing solution:

$$\frac{\text{Fl. oz. of H}_2\text{O}}{1 \text{ fl. oz. NaOCl}} = \frac{\% \text{ NaOCl} \times 10,000}{\text{Concentration in ppm}}$$

(1) **13. Mark your answer:**

- a. 16 ppm b. 156 ppm c. 391 ppm d. 781 ppm