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BSCS 1st Yr.

Assignment

Exercise 2.1

1. The elimination stage of the UAAP women's volleyball competition is played in two rounds where each competing team plays against each of the other teams once in every round. How many games are played in the elimination round if there are eight teams in a given season?

Step 1 - Understand the Problem: Find out how many games are played in total in the Elimination round.

Step 2 - Device a Plan: Enumerate total games played in the first and second round.

$C = n / (n-r) \mid r \mid$; let $n =$ teams, $r =$ competing with other team

Step 3 - Carry out the plan:

$C = 8 / (8-2) \mid 2 \mid = 28$ games in total

2. Find the digit that is 50 places to the right of the decimal point in the decimal representation of the rational number.

Step 1 - Understand the problem: Find the digit that is 50 places to the right of the decimal point in the decimal form of the rational number. By using a sample rational number, $2/27$

Step 2 - Device a Plan: First, the rational number should be expressed in decimal form 0.074074074074074074.

Step 3 - Carry out the plan: The pattern in the decimal sequence repeats after every 3 digits.

Step 4 - Look back: A rational number is a number which can be written in the form,

where a and b are both integers and b is not equal to 0

3. A coffee shop is giving away a signature annual planner. In the mechanics, each customer has to collect 24 stickers to avail of the said planner, and a customer can share stickers. At the end of the promo period, Tito had the greatest number of stickers, more than enough to get the planner. Unfortunately, Vic and Joey did not have not enough. This is what they did: First, Tito gave Vic and Joey as many stickers as each had; After this, Vic gave Tito and Joey as many stickers as they had; and in turn, Joey gave Tito and Vic as many stickers as they had. At the end, each of the three friends had exactly enough stickers to get a planner. How many stickers did each person have at the start?

4. Iza can earn ₱ 7,800 for doing 3 hours of office work and 2 hours of field work. However, she earns ₱8,200 if she works 2 hours in the office and 3 hours in the field. What is the rate per hour? of Iza for doing office work and for doing field work?

Step 1 - Understand the problem: What is the rate per hour if Iza does both office work and field work?

Step 2 - Devise a plan: X = office hours

Y = work hours

1. $3x+2y=7,800$

2. $2x+3y=8,200$

Step 3 - Carry out the plan:

$$3y+2x=8,200$$

$$-2y-3x=7,800$$

$$y=400+x$$

$$3(400+x) + 2x=8,200$$

$$1,200+3x+2x=8,200$$

$$5x=7,000$$

$$X = 1,400$$

$$2y+3x=7,800$$

$$2y+3(1,400) = 7,800$$

$$2y+4,200=7,800$$

$$2y=3,600$$

$$Y = 1,800$$

1,400 pesos for office work/hour and 1,800 pesos for field work/hour.

5. Ed's purse contains some 10-peso, 5-peso, 1-peso, and 25-centavo coins. How many of each type does he have if the purse has a total of 20.50? ₱

Step 1 (Understand the problem):

-There are 10-peso, 5-peso, 1-peso, and 25-centavo coins involved.

-Summing up the coins must be equivalent to 20.50 pesos.

-Condition: There must be representative for each coin, every identified coin

must be present. The number of coins vary from each type of coin.

Step 2 (Devise a plan):

$$w = 10\text{-peso}$$

$$x = 5\text{-peso}$$

$$y = 1\text{-peso}$$

$$z = 25\text{-centavo}$$

$$\text{Eqn1: } w + x + y + z = 16.25$$

$$\text{Eqn2: } 10x + 5y + 1y + 0.25z = 20.50$$

$$\text{Interpretation: } 20.50 - 16.25 = 4.25$$

The possibility of having 10-peso and 5-peso coins have been used up, so there must be one 10-peso and one 5-peso. Using the 1-peso and 25-centavo coins, 4.25 should be acquired.

Step 3 (Carry out the plan):

Number of 10-peso coin	Number of 5-peso coin	Number of 1-peso coin	Number of 0.25-centavo coin	Total Amount
1	1	1	18	$10(1) + 5(1) + 1(1) + 0.25(18) = 20.50$
1	1	2	14	$10(1) + 5(1) + 1(2) + 0.25(14) = 20.50$
1	1	3	10	$10(1) + 5(1) + 1(3) + 0.25(10) = 20.50$
1	1	4	6	$10(1) + 5(1) + 1(4) + 0.25(6) = 20.50$
1	1	5	2	$10(1) + 5(1) + 1(5) + 0.25(2) = 20.50$

Step 4 (Look back):

-There are a lot of possibilities that vary the number of 1-peso and 25-centavo coins. Choosing the best answer might be hard and requires having logical thinking that considers things in a wide perspective.

-Logically speaking, the last computation is more suitable than the other computations. Considering the number of coins that the purse could hold, it is inferable that the last computation is the best answer.

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