The **Service Output Method (SOM)** models asset depreciation based on physical workload rather than the passage of time. The annual depreciation charge is directly proportional to the number of units produced during that year relative to the total expected lifetime output (T). The problem statement establishes that production follows a declining arithmetic progression: $Q_1$ = 100 units, with annual production diminishing by 10 units each year thereafter ($d_{arithmetic}$ = -10).

First, find the production output for the final year of service ($Q_8$):

$$Q_8 = Q_1 + (L - 1)d_{arithmetic} = 100 + (8 - 1)(-10) = 30 \text{ units}$$

Using the arithmetic series sum formula, calculate the total expected lifetime production (T) over 8 years:

$$T = \frac{L}{2}\left(Q_1 + Q_8\right) = \frac{8}{2}(100 + 30) = 520\, units$$

Determine the production output for Year 2 and Year 3:

- $Q_1$ = 100 units
- $Q_2$ = 100 - 10 = 90 units
- $Q_3$ = 90 - 10 = 80 units

Compute the depreciation charge for each of these three years based on the total depreciable base (₱45,000):

- $d_1 = \frac{100}{520}(45,000)$ = ₱8,653.846
- $d_2 = \frac{90}{520}(45,000)$ = ₱7,788.462
- $d_3 = \frac{100}{520}(45,000)$ = ₱6,923.077

Sum the accumulated depreciation up to Year 3 ($D_3$):

$$D_3 = ₱8,653.846 + ₱7,788.462 + ₱6,923.077 = ₱23,065.385$$

Calculate the final book value at Year 3 ($C_3$):

$$C_3 = C_o - D_3 = ₱50,000 - ₱23,065.385$$

$C_3$ = **₱26,934.62**

The Service Output Method (SOM) tracks the asset's actual physical utility. Because production drops each year, the pump or machine is used less over time, resulting in a higher remaining book value (₱26,934.62) at Year 3 compared to time-based models.

From a corporate strategy perspective, if the company's goal is **tax minimization**, management would prefer **DBM or DDBM** because writing off the asset aggressively early on creates higher legal expense deductions, reducing taxable income. However, if the goal is **accurate asset tracking** for internal accounting, the **Service Output Method** provides the most realistic picture of the asset's true remaining physical value based on its actual factory output