RD SHARMA

Solutions

Class 8 Maths

Chapter 14

Ex 14.5

Q1) Ms. Cherian purchased a boat for Rs 16000. If the total cost of the boat is depreciating at the rate of 5% per year, calculate its value after 2 years.

Solution:

Value of the boat after two years $= P\left(1 - \frac{R}{100}\right)^n$

$\Rightarrow 16000\left(1 - \frac{5}{100}\right)^2$

$= 16000\,(0.95)^2$

$= 14{,}440$

Thus, the value of the boat after two years will be Rs 14,440.

Q2) The value of a machine depreciates at the rate of 10% per annum. What will be its value 2 years hence, if the present value is Rs 100000? Also, find the total depreciation during this period.

Solution:

Value of the machine after two years $= P\left(1 - \frac{R}{100}\right)^n$

$\Rightarrow 100000\left(1 - \frac{10}{100}\right)^2$

$= 100000\,(0.90)^2$

$= 81{,}000$

Thus, the value of the machine after two years will be Rs 81,000.

Depreciation $=$ Rs 100,000 $-$ Rs 81,000

$=$ Rs 19,000

Q3) Pritam bought a plot of land for Rs 640000. Its value is increasing by 5% of its previous value after every six months. What will be the value of the plot after 2 years?

Solution:

Given:

P $=$ Rs 64,000

R $=$ 5% for every six months

Value of the plot after two years $= P\left(1 + \frac{R}{100}\right)^n$

$\Rightarrow 64000\left(1 + \frac{5}{100}\right)^4$

$= 64000(1.025)^4$

$= 706{,}440.25$

Thus, the value of the plot after two years will be Rs 706,440.25.

Q4) Mohan purchased a house for Rs 30000 and its value is depreciating at the rate of 25% per year. Find the value of the house after 3 years.

Solution:

Value of the house after three years $= P\left(1 - \frac{R}{100}\right)^n$

$\Rightarrow 30000\left(1 - \frac{25}{100}\right)^3$

$= 30000(0.75)^3$

$= 12{,}656.25$

Thus, the value of the house after three years will be Rs 12,656.25.

Q5) The value of a machine depreciates at the rate of 10% per annum. It was purchased 3 years ago. If its present value is Rs 43740, find its purchase price.

Solution:

Purchase price = $P\left(1 - \frac{R}{100}\right)^{-n}$

$\Rightarrow 43740\left(1 - \frac{10}{100}\right)^{-3}$

$= 43740(0.90)^{-3}$

$= 60{,}000$

Thus, the purchase price of the machine was Rs 60,000.

Q6) The value of a refrigerator which was purchased 2 years ago, depreciates at 12% per annum. If its present value is Rs 9680, for how much was it purchased?

Solution:

Purchase price = $P\left(1 - \frac{R}{100}\right)^{-n}$

$\Rightarrow 9680\left(1 - \frac{12}{100}\right)^{-2}$

$= 9680(0.88)^{-2}$

$= 12{,}500$

Thus, the purchase price of the refrigerator was Rs 12,500.

Q7) The cost of a T.V. set was quoted Rs 17000 at the beginning of 1999. In the beginning of 2000 the price was hiked by 5%. Because of decrease in demand the cost was reduced by 4% in the beginning of 2001. What was the cost of the T.V. set in 2001?

Solution:

Cost of the TV = $P\left(1 + \frac{R}{100}\right)\left(1 - \frac{R}{100}\right)$

$\Rightarrow 17000\left(1 + \frac{5}{100}\right)\left(1 - \frac{4}{100}\right)$

$= 17{,}000\,(1.05)\,(0.96)$

$= 17{,}136$

Thus, the cost of the TV in 2001 was Rs 17,136.

Q8) Ashish started the business with an initial investment of Rs 500000. In the first year he incurred a loss of 4%. However during the second year he earned a profit of 5% which in third year rose to 10%. Calculate the net profit for the entire period of 3 years.

Solution:

Profit for three years = $P\left(1 - \frac{R_1}{100}\right)\left(1 + \frac{R_2}{100}\right)\left(1 + \frac{R_3}{100}\right)$

$\Rightarrow 500000\left(1 - \frac{4}{100}\right)\left(1 + \frac{5}{100}\right)\left(1 + \frac{10}{100}\right)$

$= 500{,}000\,(0.96)\,(1.05)\,(1.10) = 554{,}400$

Thus, the net profit is Rs 554,400.