

Answer on Question #47355, Engineering, Other

Amanda has bought a second-hand car for \$4,000. She plans to keep it for four years, at the end of which it is likely to fetch \$500, if the maintenance cost is \$350 per year, and $i = 8\%$ per year, what is the car's net annual cost?

Solution:

We have the initial cost of a car (cost of acquisition of a used car) which is equal to \$4,000. The maintenance cost is \$350 per year, $i = 8\%$ per year.

So we can first determine the loss on sale of cars, which will be equal to the sum spent on acquisition minus the proceeds of the sale. We can note the following:

$$\$4,000 - \$500 = \$3500$$

Now we define the average loss from the sale of a vehicle for four years:

$$\text{Loss from the sale car} = \frac{\$3500}{4} = \$875$$

The interest cost with $i = 8\%$ per year of the car will be:

$$\$4000 \cdot \frac{8\%}{100\%} = \$320 \text{ per year}$$

We can add this sum to the maintenance cost, and then the total annual cost per year will be

$$\$350 + \$320 = \$670$$

Now we can calculate the car's net annual cost.

$$\text{Car's net annual cost} = \$350 + \$875 + \$320 = \$1545$$

Answer: Car's net annual cost will be equal to \$1545.