

Depreciation

- How much will a car, costing €30 000, be worth in
 - five years
 - ten years time based on a depreciation of 15% per annum ?
- A new television costs €1400. Assuming a depreciation rate of 8% per month, find the value of the television after 15 months.
- A car costing €44 000 depreciates in value by 20% in the first year, and by 15% per year on a reducing balance basis for each subsequent year. Find the value of the car after
 - 3 years
 - 6 years
- A company buys a machine costing €140 000. In order to facilitate its replacement, the company invests €25 000 in a bank offering a return of 3.5% per annum compound interest. If the machine depreciates at a rate of 20% per annum, find
 - the value of the machine in 4 years time
 - the value of their savings investment in 4 years time.
 - If inflation over the 4 years averages 2% per annum, find
 - the cost of buying a new machine in 4 years time
 - how much money the company will need to add to their savings in order to replace the machine, taking the second-hand value of the machine in 4 years time into account.

(Note: Inflation is a rise in the general level of prices of goods and services in an economy)
- A company asset reduces in value from €175 000 to €73 187.09, at a depreciation rate of 16% per annum over t years.
 - By trial and error, estimate the value of t .
 - Using logs, find the value of t .
- A creamery has a stock of 60 000 kg of dried milk powder at the end of January 2004. If the stock is reduced at a rate of 15% per month, find the dried milk stock, to the nearest kg, at the beginning of April 2005.
- A farmer buys a tractor for €180 000. He assumes that the tractor will have a trade-in value of €80 000 in 10 years time.

- i. Calculate the rate of depreciation per annum, correct to one place of decimals, based on these figures.
 - ii. At this rate, when will the value of the tractor fall below €60 000?
8. A computer is bought for €2500. Compare the trade-in value of the computer after 4 years based on
 - i. a net loss in value of €550 per year OR
 - ii. a loss of 35% per year.
9. A computer system is bought for €23 500. It depreciates at a rate of 28% per annum. Find the value of the computer after
 - i. 2 years
 - ii. 5 years
 - iii. 7 years.
10. A company's policy is to change all of its vehicles after three years, as it helps to reduce maintenance costs. If a vehicle which originally cost €45,400 now has a net book value of €29,056, having been depreciated for a number of years, is it due for a change? The company uses a 20% rate of depreciation per annum.
11. A data analysis system, with a total cost of €346,000 was installed in a university. The policy of the university is to depreciate all analysis equipment and systems at a reducing-balance rate of 12.5% per annum. Due to the rapid development of technology, it is felt that such a system will be due for renewal every two and a half years. If the net book value of the system is now €264,906.25, how much longer will it be before the system should be updated?
12. A computer was purchased at the start of 2010 for €2,500. It is expected that the computer will only be worth €1,378.42 at the end of 2012. What is the rate of depreciation (reducing-balance method)? (Give your answer as a percentage correct to two decimal places.)
13. A lorry was purchased for €150,000 at the end of 2006. At the start of 2011 the lorry was sold at its NBV of €49,152. What was the annual rate of depreciation charged (reducing-balance method) on the lorry? (Answer correct to four significant figures)
14. A pharmaceutical company has a patent on its newest headache tablet. The patent office has granted the patent for a 10-year period. In line with company policy, the accountants for the firm decide to write off the patent using a reducing-balance method. The patent is estimated to be worth €15,000,000 now. What annual rate of depreciation should the firm's accountants use in order to write the patent off over a 10-year period? (Hint: Let the residual value be €0.01.)
15. A company has a policy to depreciate all computers at a reducing-balance rate of 20%. Computers owned by the firm are valued (net book value) at €150,000. An auditor recently pointed out that due to increases in technology, computers were losing value at a much quicker rate than in previous years. The auditor estimated that the value of the computers in two years' time would only be €95,000. Does the firm have an adequate depreciation policy? Explain your answer.