Depreciation

The depreciation formula works as you would expect; in reverse to the compound interest formula. A look at the formula shows the negative sign within the brackets; opposed to the positive sign in the compound formula.

The individual elements within the formula all have the same meanings and naturally remain unchanged.

Example 1

A car is a company asset that depreciates over time. If this car was valued at €40,000 when first purchased and was sold on 5 years late, calculate using the depreciation formula the resale value of the asset if the annum depreciation rate is 18% per annum.

P. (1 − i) ⁿ = F

18% ÷ 100 = ·18

40,000.(1-·18)^5 =

40,000.(·82)^5 =

40,000x·37 =

€14,829·60

Example 2

A company asset depreciates in value from €28,000 to €19,000 in 4 years. Calculate the rate of depreciation (i) per annum.

Using:

P. (1 − i) ⁿ = F

28,000.(1-i)^4 = 19,000

(1-i)^4 = 19,000÷ 28,000

(1-i)^4 = ·6786

Again the power is a problem, but it can be eliminated using the following method:

((1-i)^4)^¼ = ·6786^¼

(1-i) = ·9076

1-·9076 = ·0924

·0924 x 100 = 9·24 % per annum

Powers

Powers don’t just have integer values of; 1, 2, 4 etc. and it doesn’t always have to be a positive number either. For example:

1 ÷ (20)² = ·0025

≡

(20)ˉ² = ·0025

In example 2, we removed the power of (^4) by applying the power (^¼) to both sides of the equation. 4 x ¼ = 1. This can be easily achieved using the Variable power button X° on your calculator.

((9^²) ^½) = 9

(81)^ ½ = 9

However, this isn’t the only way to solve this problem; the variable square root button can achieve the same outcome, but let’s keep it simple.