Compound Interest and Depreciation

"Compound interest is the eighth wonder of the world. He who understands it, earns it ... he who doesn't ... pays it."

— Albert Einstein

Compound interest is where the amount of interest you get each year changes because you get interest on your interest

If I had £1000 in the bank and I earned 5% interest per year

In year 1 I would earn 5% of £1000 (£50)
My bank balance would then be £1050

In year 2 I would earn 5% of the £1050 (£52.50)
My bank balance would then be £1102.50

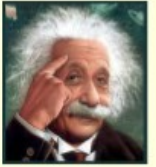In year 3 I would earn 5% of the £1102.50 (£55.13)
My bank balance would then be £1157.63

And so on...

Depreciation is the similar to compound interest but the value decreases by the same percentage every year

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Doing compound interest and depreciation questions this way can be time consuming. There is a quicker way!

If I had £1000 in the bank and I earned 5% interest per year

£1000 is 100% and I want to add 5%. I want to work out 105%

as a decimal 105% is 1.05

to work out 105% all I have to do is multiply by 1.05

For 2 years I need to multiply by 1.05 twice

$1000 \times 1.05 \times 1.05$ or 1000×1.05^2

For 3 years I need to multiply by 1.05 3 times

$1000 \times 1.05 \times 1.05 \times 1.05$ or 1000×1.05^3

For 10 years I need to multiply by 1.05 ten times

1000×1.05^{10}