

Salary: What you make each year.

If you make 100\$ each year you get a 3% raise how much money do you make in year 3? How much total money do you make over 10 years?

part 1 How much money you make in year 3.

$$\text{year 1} = 100$$

$$\text{year 2} = 100(1 + 0.03) \quad \text{or} \quad \text{year 1} \cdot (1 + 0.03)$$

$$\text{year 3} = \text{year 2} (1 + 0.03)$$

we used 2 r's, the first "r" is the % rate added to 1. The other "r" is the common ratio used to set up geo sequence.

$$a_n = a_1 r^{n-1}$$

where this "r" is  $(1 + \text{\% rate})$

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part 2 using the common ratio "r", (1.03) and not the percentage rate, (0.03)

sum up each ~~each~~ year salary total

$$S_{10} = \frac{100(1 - 1.03^{10})}{1 - 1.03} \leftarrow \frac{a_1(1 - r^n)}{1 - r}$$

where r = common ratio