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Geometric Series

| Past Paper Question | C2 Edexcel January 2013

Q3(c)

A company predicts a yearly profit of £120 000 in the year 2013. The company predicts that the yearly profit will rise each year by 5%. The predicted yearly profit forms a geometric sequence with common ratio 1.05

Find the total predicted profit for the years 2013 to 2023 inclusive, giving your answer to the nearest pound.

2013, 2014, , 2023

Total profit = S_n

$$= \frac{120000(1.05^n - 1)}{1.05 - 1}$$

$$= \pounds 1704814.459$$

$$= \pounds 1704814 \text{ (to the nearest } \pounds)$$

a, ar, ar^2, ar^3, \dots

$$S_n = \frac{a(r^n - 1)}{r - 1}$$

$$= \frac{a(1 - r^n)}{1 - r}$$



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