



Compare nominal and effective interest rates

1

What does this term represent in a model of growth of a rabbit population (yearly breeding cycle)?

$$P = P_0 \cdot (1 + r)^t$$

$r = ?$

A $r = \text{final population}$

B $r = \text{rate}$

C $r = \text{time}$

2

Which scenario describes this equation?

$$259 = 200 \cdot (1 + 0.09)^{(3)}$$

A An insect population starts at 200. Each subsequent yearly breeding season it grows by 9%. After 3 years it has increased to a population of 259.

B An insect population starts at 300. Each subsequent yearly breeding season it grows by 9%. After 2 years it has increased to a population of 259.

3

What is the starting population in this equation for a growth of an insect population that breeds once per year?

$$1,184 = 900 \cdot (1 + 0.04)^{(7)}$$

A $P_0 = 4$

B $P_0 = 900$

C $P_0 = 1184$

4

What does this term represent in a model of quarterly compounding growth of money in a savings account?

$$P = P_0 \cdot (1 + r)^t$$

$t = ?$

A $t = \text{time}$

B $t = \text{rate}$

5

Which scenario describes this equation?

$$6,403 = 5800 \cdot (1 + 0.02)^{(5)}$$

A A savings account starts with \$5800. Each subsequent quarter it earns 2% in interest. After 5 quarters it has \$6,403.

B A savings account starts with \$500. Each subsequent quarter it earns 2% in interest. After 58 quarters it has \$6,403.

6

A savings account starts with \$4700. Each subsequent month it earns 6% in interest. After 9 months it has \$7,940.

A $7,940 = 4700 \cdot (1 + 0.06)^{(9)}$

B $7,940 = 900 \cdot (1 + 0.06)^{(47)}$

C $7,940 = 600 \cdot (1 + 0.47)^{(9)}$

7

What does the highlighted variable in the formula represent?

$$r_{\text{eff}} = \left(1 + \frac{r_{\text{nom}}}{m}\right)^m - 1$$

A the number of compounding periods per year

B the principal amount invested

C the effective annual interest rate

D the nominal annual interest rate

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Which formula highlights the nominal annual interest rate?

A $r_{\text{eff}} = \left(1 + \frac{r_{\text{nom}}}{n}\right)^n - 1$

B $r_{\text{eff}} = \left(1 + \frac{r_{\text{nom}}}{n}\right)^{\overline{n}} - 1$

C $r_{\text{eff}} = \left(1 + \frac{r_{\text{nom}}}{n}\right)^n - 1$



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9

A nominal annual interest rate of 16% is compounded quarterly. What is the effective annual interest rate, to 2 decimal places? Use the formula shown.

$$r_{\text{eff}} = \left(1 + \frac{r_{\text{nom}}}{m}\right)^m - 1$$

- A 16.99% B 16.00% C 17.35% D 17.32%

10

A nominal annual interest rate of 6% is compounded monthly. What is the effective annual interest rate, to 2 decimal places?

- | | |
|------------|------------|
| A
6.18% | B
6.17% |
| C
6.14% | D
6.00% |

11

An effective annual interest rate of 17.23% is compounded monthly. What is the nominal annual interest rate? Use the formula shown.

$$r_{\text{eff}} = \left(1 + \frac{r_{\text{nom}}}{n}\right)^n - 1$$

- A 14% B 16% C 8% D 15%

12

A nominal annual interest rate of 9% is compounded monthly. What is the effective annual interest rate, to 2 decimal places? Use the formula shown.

$$r_{\text{eff}} = \left(1 + \frac{r_{\text{nom}}}{m}\right)^m - 1$$

- A 9.41% B 9.42% C 9.38% D 9.00%