

**Determine the growth or decay factor****1**

What does this term represent in a model of growth of an insect population that breeds once per year?

$$\frac{P = P_0 \cdot (1+r)^t}{P_0 = ?}$$

- A $P_0 = \text{time}$
- B $P_0 = \text{final population}$
- C $P_0 = \text{starting population}$

2

What is the final concentration in this equation for a decline of a toxin concentration (weekly dialysis)?

$$722 = 800 \cdot (1 - 0.05)^{(2)}$$

- A $C = 2$
- B $C = 722$
- C $C = 800$

3

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

$$1,395 = 700 \cdot (1 + 0.09)^{(8)}$$

- A $r = 700\%$
- B $r = 9\%$

4

What is the value of the final debt given this model of a growth in credit card debt with yearly interest?

$$D = 600 \cdot (1 + 0.09)^{(4)}$$

- A $D = 846$
- B $D = 995$
- C $D = 635$
- D $D = 970$

5

A savings account starts with \$400. Each subsequent month it earns 9% in interest. After 7 months it has a certain amount of cash.

- A $P = 1,075$
- B $P = 920$
- C $P = 731$
- D $P = 1,040$

6

A rabbit population starts at 600. Each subsequent yearly breeding season it grows by 4%. After 8 years it has increased to a population of 821 rabbits.

- A $821 = 600 \cdot (1 + 0.04)^{(8)}$
- B $821 = 800 \cdot (1 + 0.04)^{(6)}$

7

Which scenario describes this equation?

$$1,434 = 900 \cdot (1 + 0.06)^{(8)}$$

- A A rabbit population starts at 800. Each subsequent yearly breeding season it grows by 6%. After 9 years it has increased to a population of 1,434 rabbits.
- B A rabbit population starts at 900. Each subsequent yearly breeding season it grows by 6%. After 8 years it has increased to a population of 1,434 rabbits.

**Determine the growth or decay factor****8**

Which scenario describes this equation?

$$454 = 800 \cdot (1 - 0.09)^{(6)}$$

- A A whale population starts at 600. Each subsequent year it declines by 9%. After 8 years it has decreased to a population of 454 whales.
- B A whale population starts at 800. Each subsequent year it declines by 9%. After 6 years it has decreased to a population of 454 whales.

9

A credit card starts with \$500 of debt. Each subsequent month it grows by 3% in interest. After 9 months the debt has grown to \$652.

- A $652 = 500 \cdot (1 + 0.03)^{(9)}$
- B $652 = 900 \cdot (1 + 0.03)^{(5)}$
- C $652 = 300 \cdot (1 + 0.05)^{(9)}$
- D $652 = 500 \cdot (1 + 0.09)^{(3)}$

10

Which scenario describes this equation?

$$712 = 600 \cdot (1 + 0.09)^{(2)}$$

- A A rabbit population starts at 600. Each subsequent yearly breeding season it grows by 9%. After 2 years it has increased to a population of 712 rabbits.
- B A rabbit population starts at 200. Each subsequent yearly breeding season it grows by 9%. After 6 years it has increased to a population of 712 rabbits.

11

Which scenario describes this equation?

$$323 = 400 \cdot (1 - 0.03)^{(7)}$$

- A A charitable endowment starts with \$400. Each monthly it disburses 3% of its remaining funds. After 7 months its funds have decreased to \$323.
- B A charitable endowment starts with \$700. Each monthly it disburses 3% of its remaining funds. After 4 months its funds have decreased to \$323.

12

A savings account starts with \$800. Each subsequent quarter it earns 9% in interest. After 5 quarters it has \$1,230.

- A $1,230 = 800 \cdot (1 + 0.09)^{(5)}$
- B $1,230 = 500 \cdot (1 + 0.09)^{(8)}$
- C $1,230 = 900 \cdot (1 + 0.08)^{(5)}$