



Financial Mathematics

1 What is the value of the final cash given this scenario?

A savings account starts with \$4100. Each subsequent quarter it earns 2% in interest. After 8 quarters it has a certain amount of cash.

A	$P = 4,320$
B	$P = 2,920$
C	$P = 5,370$
D	$P = 4,803$

2 What is the simple interest in this situation?

A 1,575	B 790	C 2,203
D 476	E 2,517	F 2,674

3 What is the rate in this simple interest situation?

A 20	B 24	C 15
D 6	E 23	F 22

4 What is the principle in this simple interest situation?

A 1,120	B 1,050	C 700
D 1,260	E 280	F 490

5 What is the time in this simple interest situation?

A 3	B 12	C 13
D 4	E 5	F 11

6 A nominal annual interest rate of 14% is compounded monthly. What is the effective annual interest rate, to 2 decimal places? Use the formula shown.

A 15.01%	B 14.93%
C 14.00%	D 14.75%

7 Find the effective annual interest rate.

A nominal annual interest rate of 17% is compounded daily. What is the effective annual interest rate, to 2 decimal places?

A 18.39%	B 18.11%
C 17.00%	D 18.53%



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8 Which option is the better loan (the lower total cost)?

Option A: Loan	
Principal	\$2,150
Interest Rate	3.4%
Compounding	Monthly
Term	5 years
Fees	\$211.43

Option B: Loan	
Principal	\$2,150
Interest Rate	5.4%
Compounding	Monthly
Term	5 years
Fees	None

A

B

B

A

9 An effective annual interest rate of 16.99% is compounded quarterly. What is the nominal annual interest rate? Use the formula shown.

A 3%	B 16%
C 15%	D 7%

10 Find the nominal annual interest rate.

An effective annual interest rate of 5.12% is compounded weekly. What is the nominal annual interest rate?

A 5%	B 8%
C 12%	D 9%

11 What is the value of the final population given this scenario?

An insect population starts at 900. Each subsequent yearly breeding season it grows by 2%. After 8 years it has increased to a certain population.

A	$P = 1,290$
B	$P = 1,054$
C	$P = 1,080$
D	$P = 840$



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12 What is the value of the final cash given this scenario?

A savings account starts with \$300. Each subsequent month it earns 2% in interest. After 8 years it has a certain amount of cash.

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|---|-------------|
| A | $P = 3,010$ |
| B | $P = 2,540$ |
| C | $P = 2,007$ |
| D | $P = 2,340$ |

13 What is the value of the starting cash given this model of a quarterly compounding growth of money in a savings account?

$$5,019 = P_0 \cdot (1 + 0.02)^{(9)}$$

- | | |
|---|--------------|
| A | $P_0 = 4200$ |
| B | $P_0 = 4000$ |
| C | $P_0 = 4100$ |
| D | $P_0 = 4500$ |

14 What is the value of the starting cash given this scenario?

A savings account starts with a certain amount of cash. Each subsequent quarter it earns 4% in interest. After 9 quarters it has \$6,262.

- | | |
|---|--------------|
| A | $P_0 = 4200$ |
| B | $P_0 = 4300$ |
| C | $P_0 = 4500$ |
| D | $P_0 = 4400$ |