

Percents | Compound Interest | Answers

Task 1. Mr. Smith wanted to insure the apartment. The insurance agent included three discounts on the basic premium:

- 4% for continuation of insurance,
- 7% for the installing of anti-theft doors
- 13% for insuring a car in the same insurance company

However the agent also counted a raise of 11% because Mr Kowalski's apartment was on the ground floor.

Calculate, what percentage of the premium did Mr. Smith pay for the insurance of his apartment?

(a) Write your calculations: $0.96 \times 0.93 \times 0.87 \times 1.11 = 0.8621769599 \dots = 86.21768599\%$

(b) Write first three digits of the decimal result.

8	6	2
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Task 2. Find the amount of interest earned by a deposit of \$1000 for 2 years invested at 2% compounded annually.

Solution

$r = 2\%$	Annual percentage
$p = 2\% \div 1 = 2\%$	Every year interest percentage increase rate
$m = 100\% + 2\% = 102\% = 1.02$	Compound increase multiplier
$t = 2 \times 1 = 2$	Number of increase terms
$F = \$1000 \times (1.02)^2 = \$1040.707 \dots \approx \$1040.40$	Final amount
$E = \$1040.40 - \$1000 = \$40.40$	Interest earned

Answer: \$40.40.

Task 3. Find the amount of interest earned by a deposit of \$1000 for 2 years invested at 2% compounded semi-annually.

Solution

$r = 2\%$	Annual percentage
$p = 2\% \div 2 = 1\%$	Every semi-annual interest percentage increase rate
$m = 100\% + 1\% = 101\% = 1.01$	Compound increase multiplier
$t = 2 \times 2 = 4$	Number of increase terms
$F = \$1000 \times (1.01)^4 = \$1040.707 \dots \approx \$1040.60$	Final amount
$E = \$1040.60 - \$1000 = \$40.60$	Interest earned

Answer: \$40.60.

Task 4. Find the amount of interest earned by a deposit of \$1000 for 2 years invested at 2% compounded quarterly.

Solution

$r = 2\%$	Annual percentage
$p = 2\% \div 4 = 0.5\%$	Every quarterly interest increase percentage rate
$m = 100\% + 0.5\% = 100.5\% = 1.005$	Compound increase multiplier
$t = 2 \times 4 = 8$	Number of increase terms
$F = \$1000 \times (1.005)^8 = \$1040.707 \dots \approx \$1040.71$	Final amount
$E = \$1040.71 - \$1000 = \$40.71$	Interest earned

Answer: \$40.71.

Task 5. Solve the [compound interest problems](#) from Wallace Algebra.

Answers - in the same Wallace Algebra file.