Topic test | Financial mathematics

Financial mathematics - Practice 2

Name: _____ Date: _____

16 questions | 44 marks | 60 minutes

A different mix of reverse percentages, model comparisons and financial assumptions.

A scientific calculator may be used.

1. Find 18% of 250 dollars. [2 marks]

2. A price rises from 64 to 80 dollars. Find the percentage increase. [2 marks]

3. After a 12% increase, a fee is 112 dollars. Find the original fee. [3 marks]

4. A 100-dollar price rises by 20%, then falls by 5%. Find the final price and net percentage increase. [3 marks]

5. A 1,500-dollar principal earns 180 dollars simple interest over 2 years. Find the annual percentage rate. [3 marks]

6. How long does 500 dollars take to earn 75 dollars at 5% simple interest per year? [2 marks]

7. Find the final amount for 1,200 dollars at 5.5% simple interest per year for 2 years. [3 marks]

8. Hire A costs $35 + 2h$ dollars and B costs $11 + 5h$ dollars. Find their equal-cost time and cost. [3 marks]

9. Hire A costs $35 + 2h$ dollars and B costs $11 + 5h$ dollars. Compare their costs for 10 hours. [2 marks]

10. A class sells 30 tickets at 14 dollars each. Costs are 160 dollars plus 6 dollars per ticket. Find the surplus. [3 marks]

11. An event sells 20 tickets at 14 dollars each. Costs are 160 dollars fixed plus 6 dollars for each ticket sold. Find the balance. [3 marks]

12. Assume each rule is either linear or quadratic. Classify the models consistent with the table and explain the first and second differences. [3 marks]

Equal input steps

n	P	Q
0	10	10
1	15	12
2	20	16
3	25	22

13. Costs are $C_A = 5n + 20$ and $C_B = n^2 + 20$. Find all equal-cost counts, then state the positive one. [3 marks]

14. Find both counts giving revenue 35 dollars in $R = n(12 - n)$. [3 marks]

15. An account has principal 800 dollars and interest 64 dollars. A report labels 64 dollars as the final balance. Correct it. [2 marks]

16. Compare net first-year gains on 1,000 dollars: A pays 4% simple interest but charges a 5-dollar fee; B pays 3.8% with no fee. [4 marks]