

MTH 153-MATH OF FINANCE (MOF): SAMPLE EXAM

Several problems ask you to compute an amount of money and bubble in the dollar's digit. To do this round your answer to the nearest penny then choose the dollar's digit. For example, if you compute \$3457.859, you round to \$3457.86 and bubble in 7, the dollar's digit. DO NOT ROUND TO THE NEAREST DOLLAR!

PROBLEM 1. Solve the equation

$$x^3 + 23x = 60 - 8x^2$$

The smallest solution is closest to

- | | | | | |
|-------|-------|--------|------|-------|
| A. 2 | B. -2 | C. -10 | D. 6 | E. 10 |
| F. -8 | G. 4 | H. -6 | I. 8 | J. -4 |
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PROBLEM 2. Solve the equation $2x^2 - 1 = 12$. The smallest or only solution, if it exists, is closest to

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|---------|---------|---------|---------|---------|
| A. -2.3 | B. -1.8 | C. -2.5 | D. -2.6 | E. -2.7 |
| F. -2.4 | G. -2.1 | H. -1.9 | I. -2.8 | J. -2.2 |
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PROBLEM 3. The effective interest rate of 2% compounded quarterly is closest to

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|-----------|-----------|-----------|-----------|-----------|
| A. 2.0150 | B. 2.0140 | C. 2.0160 | D. 2.0130 | E. 2.0155 |
| F. 2.0125 | G. 2.0165 | H. 2.0135 | I. 2.0170 | J. 2.0145 |
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PROBLEM 4. Union Atlantic Railroad needs to accumulate \$75,000 in 12 years to fund a special project. If money earns interest at the rate of 10% compounded quarterly, what should be the quarterly deposit to sinking fund? The dollar's digit is

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|------|------|------|------|------|
| A. 5 | B. 1 | C. 0 | D. 9 | E. 2 |
| F. 6 | G. 4 | H. 8 | I. 3 | J. 7 |
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PROBLEM 5. What present value at 6% compounded quarterly will be worth \$10,000 three years from now? The dollar's digit is

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|------|------|------|------|------|
| A. 4 | B. 8 | C. 3 | D. 6 | E. 2 |
| F. 1 | G. 9 | H. 7 | I. 0 | J. 5 |
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PROBLEM 6. Juanita Hernandez buys \$12,000 of furniture with 25% down in 10 monthly payments at 9% annual interest compounded monthly. The dollar's digit of each payment is

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|------|------|------|------|------|
| A. 4 | B. 6 | C. 2 | D. 8 | E. 0 |
| F. 7 | G. 3 | H. 9 | I. 5 | J. 1 |

EXAM CONTINUES ON BACK OF SHEET

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PROBLEM 7. Ray Rufus has won first prize in a promotional contest sponsored by a fast-food company. The prize is \$396 now and \$225 a quarter for 12 years, starting a quarter from now. Find the current cost of the prize to the fast-food company, assuming an annual interest rate of 8% with quarterly compounding. The dollar's digit is

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|------|------|------|------|------|
| A. 1 | B. 7 | C. 2 | D. 0 | E. 9 |
| F. 5 | G. 3 | H. 6 | I. 8 | J. 4 |
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PROBLEM 8. The number of bacteria in a culture triples every 4 hours. If 58 are present initially, the number present at the end of 20 hours is closest to

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|----------|----------|----------|----------|----------|
| A. 10000 | B. 4000 | C. 11000 | D. 12000 | E. 9000 |
| F. 5000 | G. 14000 | H. 7000 | I. 6000 | J. 13000 |
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PROBLEM 9. Bill Goldstern has borrowed \$15,000 from Union Atlantic Bank. The loan is payable in three years and the interest rate is 12% compounded quarterly. What is the total interest? The dollar's digit is

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|------|------|------|------|------|
| A. 0 | B. 8 | C. 7 | D. 2 | E. 6 |
| F. 3 | G. 4 | H. 1 | I. 5 | J. 9 |
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PROBLEM 10. Cars Unlimited is offering used cars at \$3000 with financing at 9% compounded monthly for 42 months. What is the monthly payment? The dollar's digit is

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|------|------|------|------|------|
| A. 6 | B. 8 | C. 1 | D. 0 | E. 4 |
| F. 3 | G. 5 | H. 9 | I. 7 | J. 2 |

PROBLEM 11. What is the principal after 20 months. The dollar's digit is

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|------|------|------|------|------|
| A. 8 | B. 3 | C. 4 | D. 1 | E. 9 |
| F. 2 | G. 7 | H. 5 | I. 6 | J. 0 |
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PROBLEM 12. John Dartmoor deposits \$75 at the end of every month into an account paying 6% compounded monthly. How much is in the account after 4 years? The dollar's digit is

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|------|------|------|------|------|
| A. 8 | B. 2 | C. 6 | D. 0 | E. 1 |
| F. 3 | G. 4 | H. 9 | I. 7 | J. 5 |

The correct answers are: 1-A, 2-G, 3-A, 4-A, 5-C, 6-F, 7-B, 8-G, 9-E, 10-F, 11-A, 12-I