

Name _____
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Date _____
Algebra II

Modeling Exponential Functions Practice

1. Joe Manana just opened a bank account with a \$5000 initial balance. If the interest is compounded quarterly at a rate of 2.8%, how long would it take for his money to double? Round your answer to the *nearest tenth of a year*.

2. The half-life of substance X is 12.4 minutes. How much of a 300mg sample of substance X will remain after 1 hour to the *nearest milligram*?

3. A bank account opened up 3 years ago with an initial balance of \$12000 now has a balance of \$12824. Find the annual growth rate, to the *nearest tenth of a percent*.

4. How much money is in a bank account opened 6.5 years ago with \$2155.67 that is compounded weekly with an interest rate of 5.16% rounded to the *nearest cent*?

5. The table below shows three different investment options in which Lauren can invest \$8,000.

Option	Annual Interest Rate	Frequency of Compounding
A	6.45%	Annually
B	6.43%	Continuously
C	6.44%	Weekly

Which option will allow Lauren to earn the most money over the course of a four-year period? Justify your answer.

6. Jeff opened a bank account with a principal balance of \$3000. Interest is compounded continuously at a rate of 1.3%. After how many years, to the *nearest tenth of a year*, will it take for Jeff's account to increase by 50%?

7. The principal value of a loan is \$424,100. If there is \$110,000 remaining on the loan after 19 years, what was the annual rate of decrease to the *nearest tenth of a percent*?

8. Jay borrowed \$15,000 from Aaron and they came to an agreement regarding how the interest will be paid. Every five days, the loan will accumulate 2.5% interest. To the *nearest day*, after how many days will Jay owe \$2500?