

NAME: _____

1. Write a logarithmic equation and solve it.

2. Describe the relationship between the number e and the expression $\left(1 + \frac{1}{n}\right)^n$.

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3. Write a real-life problem that could be solved using the formula for interest compounded continuously, $A = Pe^{rt}$. Then solve it.

4. Explain how natural logarithms are different from and similar to common logarithms.

5. Make up a natural logarithm equation and solve it.

[1] Answers may vary. Sample: $\log x + \log 2 = 5$; $\log 2x = 5$; $2x = 10^5$; $2x = 100,000$; $x = 50,000$.

[2] As n gets larger, the value of the expression gets closer and closer to the value of e .

Answers may vary. Sample: How many years will it take to double an investment of any amount at 6%

[3] interest compounded continuously? 11.6 years

Natural logarithms are the inverse of $y = e^x$; common logarithms are the inverse of $y = 10^x$; the product property, quotient property and the power property are true for both natural logarithms and common

[4] logarithms.

[5] Answers may vary. Sample: $e^{2x} + 2 = 100$; $x = 2.29$