

Algebra 2 - Logarithms - Test

Common Core F-LE.A.4, F-BF.B.5, F-IF.C.7e · maths-pdf.fr/en/

Name: _____ Class: _____ Date: ____/____/____

This 45-minute test on logarithms has 9 questions worth 20 points in total. The questions move from direct skills to multi-step problems. Show your work, because partial credit is given for a correct setup and sound reasoning.

About this test

- Grade: Algebra 2
- Chapter: Logarithms
- Standards: F-LE.A.4, F-BF.B.5, F-IF.C.7e
- Time: 45 minutes
- Total: 20 points

Question 1 - Convert forms [2 pts]

- Write $3^4 = 81$ in logarithmic form. (1 point)
- Write $\log_5(125) = 3$ in exponential form. (1 point)

Question 2 - Evaluate [2 pts]

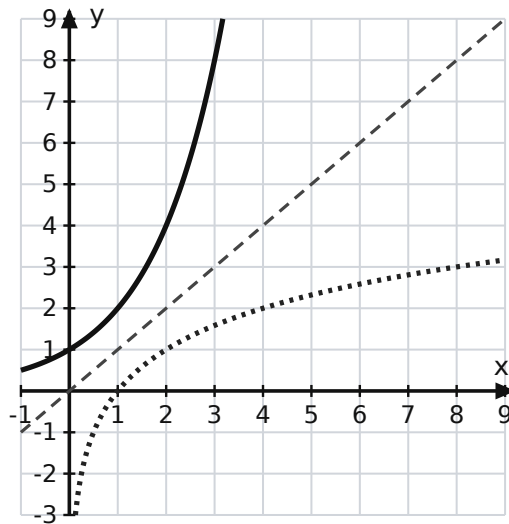
Evaluate without a calculator.

- $\log_2(32)$ (1 point)
- $\log_7(\frac{1}{7})$ (1 point)

Question 3 - Properties [3 pts]

- Expand $\log_2(8x^3)$. (2 points)
- Write $\ln 6 + \ln 5$ as one logarithm. (1 point)

Question 4 - Exponential equation [3 pts]



Graphs for reference.

Solve $4^x = 50$. Give the exact answer and the value to two decimal places.

Question 5 - Logarithmic equation [2 pts]

Solve $\log_3(2x-1) = 2$.

Question 6 - Change of base [2 pts]

Evaluate $\log_3(40)$ to two decimal places.

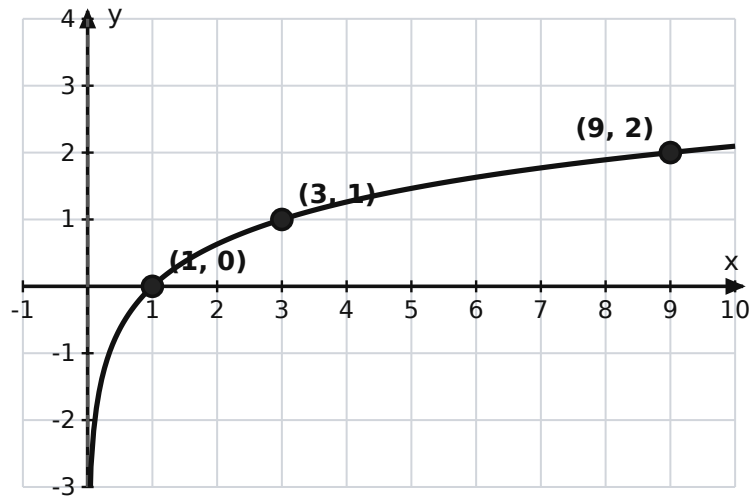
Question 7 - Doubling time [2 pts]

Years	15	17	18
Balance of 1 dollar	1.80	1.95	2.03

Balance of one dollar at 4%.

An account grows at 4% per year. Solve $1.04^t = 2$ for the doubling time and explain how the table agrees.

Question 8 - Graph features [2 pts]



Graph of $y = \log_3 x$.

The graph of $y = \log_3(x)$ is shown. State the domain, the range, and the vertical asymptote.

Question 9 - Find the error [2 pts]

x	10	100
$\log x$	1	2
$2 \log x$	2	4
$\log(2x)$	1.301	2.301

Comparison of two expressions.

Liam says $2\log x = \log(2x)$. Use the table to show his claim is false and give the correct rewrite of $2\log x$.