

Precalculus - Logarithms and Their Properties - Test

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

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

This 20-point test covers logarithm forms, properties, graphs, change of base and a pH model (F-LE.A.4, F-IF.C.7e). You have 45 minutes. Show your work.

About this test

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

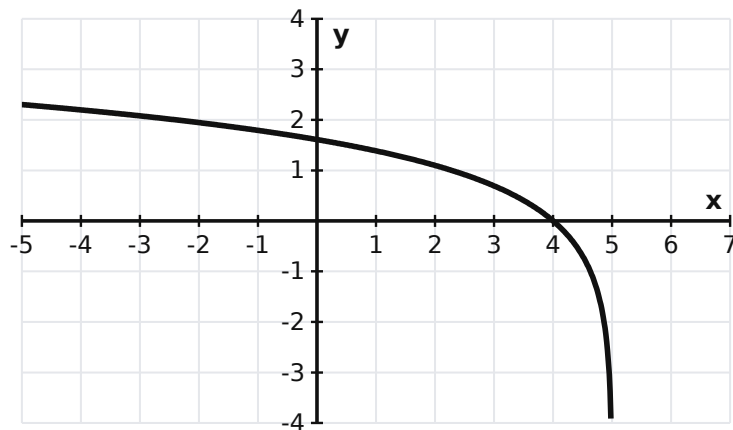
Question 1 - Convert [2 pts]

(a) Write $3^4 = 81$ in logarithmic form. (b) Write $\log_2 \frac{1}{16} = -4$ in exponential form.

Question 2 - Evaluate [2 pts]

Evaluate $\log_5 125$ and $\log_{1/3} 9$.

Question 3 - Domain [2 pts]



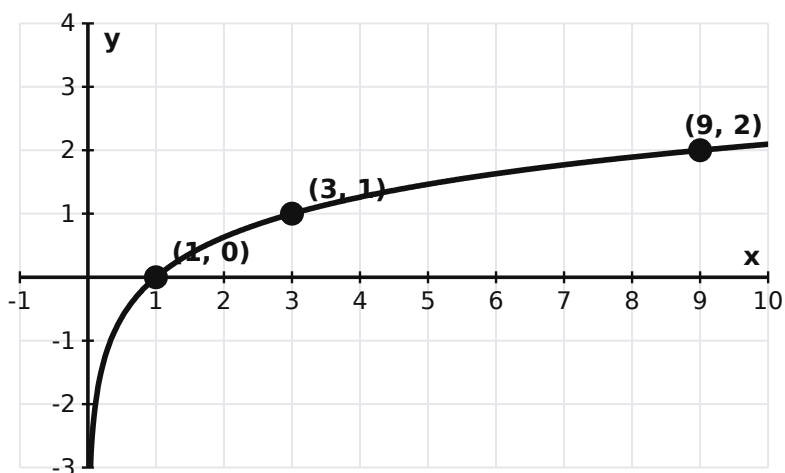
Graph of f .

Find the domain of $f(x) = \ln(5-x)$ and the equation of its vertical asymptote.

Question 4 - Expand [2 pts]

Expand $\log \frac{x^2 \sqrt{y}}{z}$.

Question 5 - Read a log graph [3 pts]



Graph of a logarithm.

The graph of $y = \log_3 x$ is shown. (a) State the vertical asymptote. (b) State the domain and range. (c) Write the inverse function.

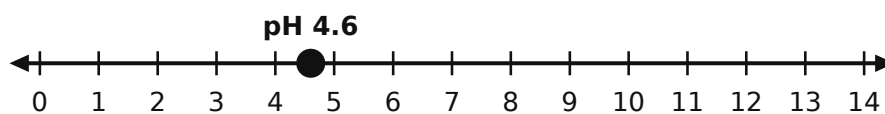
Question 6 - Condense [2 pts]

Write $3\ln x - 2\ln y + \ln 5$ as a single logarithm.

Question 7 - Change of base [2 pts]

Evaluate $\log_7 50$ to three decimal places.

Question 8 - pH model [3 pts]



A pH scale.

Use $\text{pH} = -\log[\text{H}^+]$. (a) Find the pH when $[\text{H}^+] = 2.5 \times 10^{-5}$, to the nearest tenth. (b) Find $[\text{H}^+]$ when the pH is 8. (c) How many times more acidic is a solution with pH 3 than one with pH 5?

Question 9 - Use given logs [2 pts]

If $\log_b 2 \approx 0.69$ and $\log_b 5 \approx 1.61$, approximate $\log_b 10$ and $\log_b 2.5$.