

Algebra II Honors Chapter 6 Test Exponential and Logarithmic Sample Questions

Lesson 116 | Algebra II | Exponential functions and models • Logarithms and their properties

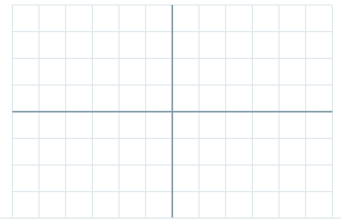
<https://www.youtube.com/watch?v=27WFQHxpmD8>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

Graph $f(x) = 4^{(x - 5)} + 2$. Give its asymptote, domain, range, and two points.

**02**

For positive x and y , expand $\log_2(14x^9/y^{11})$.

03

A population follows $P(t) = 1400 \cdot 2^t$. Find $P(0)$, $P(2)$, and the multiplication factor per time unit.

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04

Graph $y = \log_2(x - (-4)) + 4$. Give domain, vertical asymptote, and two exact points.

05

A population follows $P(t) = 400 \cdot 3^t$. Find $P(0)$, $P(2)$, and the multiplication factor per time unit.

06

For positive x and y , expand $\log_7(13x^7/y^{11})$.

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01

Graph $f(x) = 4^{(x - 5)} + 2$. Give its asymptote, domain, range, and two points.

Shift $y=4^x$ horizontally by 5 and up 2. Asymptote $y=2$; domain all real x ; range $(2, \infty)$. Points (5, 3) and (6, 6).

02

For positive x and y , expand $\log_2(14x^9/y^{11})$.

Use product, quotient, and power rules: $\log_2(14) + 9\log_2(x) - 11\log_2(y)$.

03

A population follows $P(t) = 1400 \cdot 2^t$. Find $P(0)$, $P(2)$, and the multiplication factor per time unit.

$P(0) = 1400$; $P(2) = 5600$. Each increase of one in t multiplies the population by 2.

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04

Graph $y = \log_2(x - (-4)) + 4$. Give domain, vertical asymptote, and two exact points.

Argument must be positive: $x > -4$. Asymptote $x = -4$. Since $\log_2(1)=0$ and $\log_2(2)=1$, points are $(-3, 4)$ and $(-2, 5)$.

05

A population follows $P(t) = 400 \cdot 3^t$. Find $P(0)$, $P(2)$, and the multiplication factor per time unit.

$P(0) = 400$; $P(2) = 3600$. Each increase of one in t multiplies the population by 3.

06

For positive x and y , expand $\log_7(13x^7/y^{11})$.

Use product, quotient, and power rules: $\log_7(13) + 7\log_7(x) - 11\log_7(y)$.