

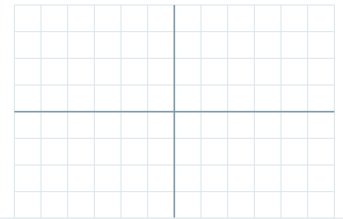
Algebra II Honors Chapter 6 Exponential and Logarithmic Functions Part I

Lesson 113 | Algebra II | Exponential functions and models • Logarithms and their properties

<https://www.youtube.com/watch?v=Wpl4Rq9PzvE>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01Graph $f(x) = 5^{(x - (-6))} + 10$. Give its asymptote, domain, range, and two points.**02**For positive x and y , expand $\log_6(2x^{13}/y^{11})$.**03**A population follows $P(t) = 1400 \cdot 5^t$. Find $P(0)$, $P(2)$, and the multiplication factor per time unit.

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04

Graph $y = \log_3(x - (5)) + 9$. Give domain, vertical asymptote, and two exact points.

05

A population follows $P(t) = 1200 \cdot 3^t$. Find $P(0)$, $P(2)$, and the multiplication factor per time unit.

06

For positive x and y , expand $\log_5(11x^8/y^{13})$.

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01

Graph $f(x) = 5^{(x - (-6))} + 10$. Give its asymptote, domain, range, and two points.

Shift $y=5^x$ horizontally by -6 and up 10. Asymptote $y=10$; domain all real x ; range $(10, \infty)$. Points $(-6, 11)$ and $(-5, 15)$.

02

For positive x and y , expand $\log_6(2x^{13}/y^{11})$.

Use product, quotient, and power rules: $\log_6(2) + 13\log_6(x) - 11\log_6(y)$.

03

A population follows $P(t) = 1400 \cdot 5^t$. Find $P(0)$, $P(2)$, and the multiplication factor per time unit.

$P(0) = 1400$; $P(2) = 35000$. Each increase of one in t multiplies the population by 5.

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04

Graph $y = \log_3(x - 5)) + 9$. Give domain, vertical asymptote, and two exact points.

Argument must be positive: $x > 5$. Asymptote $x = 5$. Since $\log_3(1)=0$ and $\log_3(3)=1$, points are (6, 9) and (8, 10).

05

A population follows $P(t) = 1200 \cdot 3^t$. Find $P(0)$, $P(2)$, and the multiplication factor per time unit.

$P(0) = 1200$; $P(2) = 10800$. Each increase of one in t multiplies the population by 3.

06

For positive x and y , expand $\log_5(11x^8/y^{13})$.

Use product, quotient, and power rules: $\log_5(11) + 8\log_5(x) - 13\log_5(y)$.