

Pre Cal 4 2 Graphing Logarithmic Functions and Conversion Between Log and Exponenti...

Lesson 210 | Precalculus | Logarithms and their properties • Exponential functions and models

<https://www.youtube.com/watch?v=dCfWi2z7AjY>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

Graph $y = \log_6(x - (7)) + 4$. Give domain, vertical asymptote, and two exact points.

02

A population follows $P(t) = 600 \cdot 3^t$. Find $P(0)$, $P(2)$, and the multiplication factor per time unit.

03

For positive x and y , expand $\log_5(3x^{10}/y^{13})$.

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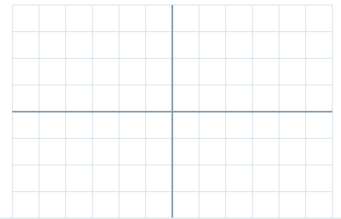
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04

Graph $f(x) = 2^{(x - (-3))} + 10$. Give its asymptote, domain, range, and two points.

**05**

For positive x and y , expand $\log_2(5x^{13}/y^4)$.

06

A population follows $P(t) = 300 \cdot 4^t$. Find $P(0)$, $P(2)$, and the multiplication factor per time unit.

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01

Graph $y = \log_6(x - 7) + 4$. Give domain, vertical asymptote, and two exact points.

Argument must be positive: $x > 7$. Asymptote $x = 7$. Since $\log_6(1)=0$ and $\log_6(6)=1$, points are (8, 4) and (13, 5).

02

A population follows $P(t) = 600 \cdot 3^t$. Find $P(0)$, $P(2)$, and the multiplication factor per time unit.

$P(0) = 600$; $P(2) = 5400$. Each increase of one in t multiplies the population by 3.

03

For positive x and y , expand $\log_5(3x^{10}/y^{13})$.

Use product, quotient, and power rules: $\log_5(3) + 10\log_5(x) - 13\log_5(y)$.

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04

Graph $f(x) = 2^{(x - (-3))} + 10$. Give its asymptote, domain, range, and two points.

Shift $y=2^x$ horizontally by -3 and up 10. Asymptote $y=10$; domain all real x ; range $(10, \infty)$. Points $(-3, 11)$ and $(-2, 12)$.

05

For positive x and y , expand $\log_2(5x^{13}/y^4)$.

Use product, quotient, and power rules: $\log_2(5) + 13\log_2(x) - 4\log_2(y)$.

06

A population follows $P(t) = 300 \cdot 4^t$. Find $P(0)$, $P(2)$, and the multiplication factor per time unit.

$P(0) = 300$; $P(2) = 4800$. Each increase of one in t multiplies the population by 4.