

Algebra II Honors Chapter 6 Part II Notes Solving Exponential Function and Finding Inver...

Lesson 114 | Algebra II | Exponential and logarithmic equations

<https://www.youtube.com/watch?v=-ovLwIxf1k>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

Solve $2^{(6x - 4)} = 4$.

02

Solve $\log_4(x - 8) = 7$. State the domain and check.

03

Solve $\log_2(x - 12) = 3$. State the domain and check.

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04

Solve $3^{(8x - 9)} = 2187$.

05

Solve $\log_7(x - 13) = 2$. State the domain and check.

06

Solve $\log_6(x - 2) = 2$. State the domain and check.

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01 Solve $2^{(6x - 4)} = 4$.

Write the right side as 2^2 ; equal bases give $6x - 4 = 2$. Thus $x = 1$.

02 Solve $\log_4(x - 8) = 7$. State the domain and check.

Domain $x > 8$. Convert to exponential form: $x - 8 = 4^7$, so $x = 16392$. The positive argument 16384 satisfies the domain.

03 Solve $\log_2(x - 12) = 3$. State the domain and check.

Domain $x > 12$. Convert to exponential form: $x - 12 = 2^3$, so $x = 20$. The positive argument 8 satisfies the domain.

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04

Solve $3^{(8x - 9)} = 2187$.

Write the right side as 3^7 ; equal bases give $8x - 9 = 7$. Thus $x = 2$.

05

Solve $\log_7(x - 13) = 2$. State the domain and check.

Domain $x > 13$. Convert to exponential form: $x - 13 = 7^2$, so $x = 62$. The positive argument 49 satisfies the domain.

06

Solve $\log_6(x - 2) = 2$. State the domain and check.

Domain $x > 2$. Convert to exponential form: $x - 2 = 6^2$, so $x = 38$. The positive argument 36 satisfies the domain.