

Pre Calculus Honors 4 4 Solving Exponential and Logarithmic Equations

Lesson 218 | Precalculus | Exponential and logarithmic equations

<https://www.youtube.com/watch?v=-o7u6BErsPI>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01 Solve $2^{(8x - 11)} = 16$.

02 Solve $\log_3(x - 6) = 2$. State the domain and check.

03 Solve $\log_2(x - 12) = 7$. State the domain and check.

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04

Solve $4^{(2x - 10)} = 4096$.

05

Solve $\log_4(x - 6) = 8$. State the domain and check.

06

Solve $\log_4(x - 6) = 6$. State the domain and check.

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01 Solve $2^{(8x - 11)} = 16$.

Write the right side as 2^4 ; equal bases give $8x - 11 = 4$. Thus $x = 15/8$.

02 Solve $\log_3(x - 6) = 2$. State the domain and check.

Domain $x > 6$. Convert to exponential form: $x - 6 = 3^2$, so $x = 15$. The positive argument 9 satisfies the domain.

03 Solve $\log_2(x - 12) = 7$. State the domain and check.

Domain $x > 12$. Convert to exponential form: $x - 12 = 2^7$, so $x = 140$. The positive argument 128 satisfies the domain.

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04

Solve $4^{(2x - 10)} = 4096$.

Write the right side as 4^6 ; equal bases give $2x - 10 = 6$. Thus $x = 8$.

05

Solve $\log_4(x - 6) = 8$. State the domain and check.

Domain $x > 6$. Convert to exponential form: $x - 6 = 4^8$, so $x = 65542$. The positive argument 65536 satisfies the domain.

06

Solve $\log_4(x - 6) = 6$. State the domain and check.

Domain $x > 6$. Convert to exponential form: $x - 6 = 4^6$, so $x = 4102$. The positive argument 4096 satisfies the domain.