

Watch. Practice. Understand. | Lesson 218

Pre Calculus Honors 4 4 Solving Exponential and Logarithmic Equations

Watch the matching video: <https://www.youtube.com/watch?v=-o7u6BErsPI>

Practice focus: Exponential and logarithmic equations

Original extra practice matched to the listed lesson topic.

Name: _____ Date: _____ Show your reasoning and check units.

01 Solve $\log_2(x - 1) = 3$.

02 Solve $\ln x + \ln(x - 2) = \ln 3$.

03 Solve $e^{2x} = 7$ exactly.

04 Find the inverse of $f(x) = 3e^x + 2$.

Worked answers | Lesson 218

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01 Solve log base 2 of $(x - 1) = 3$.

$x - 1 = 2^3 = 8$, so $x = 9$; $x > 1$ checks.

02 Solve $\ln x + \ln(x - 2) = \ln 3$.

Domain $x > 2$. $x(x - 2) = 3$, so $(x - 3)(x + 1) = 0$. Only $x = 3$ is valid.

03 Solve $e^{(2x)} = 7$ exactly.

Take $\ln$: $2x = \ln 7$. Thus $x = (\ln 7)/2$.

04 Find the inverse of $f(x) = 3e^x + 2$.

Write $y = 3e^x + 2$; $x = \ln((y - 2)/3)$. Inverse: $\ln((x - 2)/3)$, domain $x > 2$.