

## Precalculus

Basic exponent equation of type  $e^{px+q} = Ae^{rx+s}$

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## Example

Solve the equation.

$$e^{x-3} = 2e^{2x-1}$$

Divide by  $e^{2x-1}$

$$\frac{e^{x-3}}{e^{2x-1}} = 2$$

$$e^{x-3-(2x-1)} = 2$$

$$e^{-x-2} = 2$$

Apply  $\ln$

$$-x - 2 = \ln 2$$

$$-x = \ln 2 + 2$$

$$x = -(\ln 2 + 2)$$

$$x = -\ln 2 - 2$$

Final answer

$$x \approx -2.693$$

Calculator