

Calculus 1 6 Inverses and Logarithmic Functions

Lesson 257 | Calculus AB | Inverse exponential functions

<https://www.youtube.com/watch?v=ICnH-pY7KqU>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

Find the inverse of $f(x)=8e^x+5$, and state the inverse domain and range.

02

Find the inverse of $f(x)=11e^x+4$, and state the inverse domain and range.

03

Find the inverse of $f(x)=9e^x+8$, and state the inverse domain and range.

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04

Find the inverse of $f(x)=3e^x+9$, and state the inverse domain and range.

05

Find the inverse of $f(x)=2e^x+13$, and state the inverse domain and range.

06

Find the inverse of $f(x)=6e^x+12$, and state the inverse domain and range.

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01

Find the inverse of $f(x)=8e^x+5$, and state the inverse domain and range.

Let $y=8e^x+5$; $(y-5)/8=e^x$, so $x=\ln((y-5)/8)$. $f^{-1}(x)=\ln((x-5)/8)$. Domain $x>5$; range all real numbers.

02

Find the inverse of $f(x)=11e^x+4$, and state the inverse domain and range.

Let $y=11e^x+4$; $(y-4)/11=e^x$, so $x=\ln((y-4)/11)$. $f^{-1}(x)=\ln((x-4)/11)$. Domain $x>4$; range all real numbers.

03

Find the inverse of $f(x)=9e^x+8$, and state the inverse domain and range.

Let $y=9e^x+8$; $(y-8)/9=e^x$, so $x=\ln((y-8)/9)$. $f^{-1}(x)=\ln((x-8)/9)$. Domain $x>8$; range all real numbers.

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04

Find the inverse of $f(x)=3e^x+9$, and state the inverse domain and range.

Let $y=3e^x+9$; $(y-9)/3=e^x$, so $x=\ln((y-9)/3)$. $f^{-1}(x)=\ln((x-9)/3)$. Domain $x>9$; range all real numbers.

05

Find the inverse of $f(x)=2e^x+13$, and state the inverse domain and range.

Let $y=2e^x+13$; $(y-13)/2=e^x$, so $x=\ln((y-13)/2)$. $f^{-1}(x)=\ln((x-13)/2)$. Domain $x>13$; range all real numbers.

06

Find the inverse of $f(x)=6e^x+12$, and state the inverse domain and range.

Let $y=6e^x+12$; $(y-12)/6=e^x$, so $x=\ln((y-12)/6)$. $f^{-1}(x)=\ln((x-12)/6)$. Domain $x>12$; range all real numbers.