$$
\begin{aligned}
& \log _{a} b=x \Leftrightarrow a^{x}=b \\
& \log _{e} b=x \Leftrightarrow e^{x}=b \\
& \ln b=x \Leftrightarrow e^{x}=b
\end{aligned}
$$

$$
\begin{aligned}
\log _{2} 32=x & \\
& 2^{x}=32 \\
& x=5 \\
& \\
\log _{10} x=3 & \\
\log x=3 & \\
& 10^{3}=x \\
& x=1000
\end{aligned}
$$

$$
\begin{array}{r}
\ln 1=x \\
\log _{e} 1=x
\end{array}
$$

$$
e^{x}=1
$$

$$
x=0
$$

$$
\begin{aligned}
\log _{5} \frac{1}{125}=x & \\
5^{x} & =\frac{1}{125} \\
5^{x} & =\frac{1}{5^{3}} \\
x & =-3
\end{aligned}
$$

$$
\log _{8} \frac{1}{4}=x
$$

$$
8^{x}=\frac{1}{4}
$$

$$
8^{x}=\frac{1}{2^{2}}
$$

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

$$
\left(2^{3}\right)^{x}=2^{-2}
$$

$$
x=-\frac{2}{3}
$$

