

$$\log_a b = x \Leftrightarrow a^x = b$$

$$\log_e b = x \Leftrightarrow e^x = b$$

$$\ln b = x \Leftrightarrow e^x = b$$

$$\log_2 32 = x$$

$$2^x = 32$$

$$x = 5$$

$$\log_{10} x = 3$$

$$\log x = 3$$

$$10^3 = x$$

$$x = 1000$$

$$\ln 1 = x$$

$$\log_e 1 = x$$

$$e^x = 1$$

$$x = 0$$

$$\log_5 \frac{1}{125} = x$$

$$5^x = \frac{1}{125}$$

$$5^x = \frac{1}{5^3}$$

$$x = -3$$

$$\log_8 \frac{1}{4} = x$$

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

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

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

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

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

