

# Logarithmic Equations Maze

**Directions:** Find the solution to each equation to "find the log" and solve the maze. SHOW YOUR WORK!

<p><b>START:</b>  <math>\log_3 81 = x</math>  <math>3^x = 81</math>  <math>3^x = 3^4</math>  <math>x = 4</math></p>	5	<p><math>\log_{27} x = \frac{1}{3}</math>  <math>27^{1/3} = x</math>  <math>\sqrt[3]{27} = x</math>  <math>x = 3</math></p>	3	<p><math>\log_5 x = 2</math>  <math>5^2 = x</math>  <math>x = 25</math></p>	25	<p><math>\log_{32} x = \frac{1}{5}</math>  <math>32^{1/5} = x</math>  <math>\sqrt[5]{32} = x</math>  <math>x = 2</math></p>
4	-4	64	-64	-25	0.1	2
<p><math>\log_8 x = \frac{1}{3}</math>  <math>8^{1/3} = x</math>  <math>\sqrt[3]{8} = x</math>  <math>x = 2</math></p>	2	<p><math>\log_4 x = 3</math>  <math>4^3 = x</math>  <math>x = 64</math></p>	12	<p><math>\log_9 x = \frac{1}{2}</math></p>	3	<p><math>\log 0.01 = x</math>  <math>10^x = \frac{1}{100}</math>  <math>10^x = 10^{-2}</math>  <math>x = -2</math></p>
-2	-9	10	6	-6	-2	10
<p><math>\log_{1/3} x = -2</math>  <math>(\frac{1}{3})^{-2} = x</math>  <math>(\frac{3}{1})^2 = x</math>  <math>x = 9</math></p>	4	<p><math>\log_4 256 = x</math>  <math>4^x = 256</math>  <math>4^x = 4^4</math>  <math>x = 4</math></p>	$\frac{1}{9}$	<p><math>\log_3 x = -2</math>  <math>3^{-2} = x</math>  <math>x = \frac{1}{3^2}</math>  <math>x = \frac{1}{9}</math></p>	32	<p><math>\log_{1/5} x = 2</math></p>
9	$\frac{1}{9}$	5	-9	9	-6	$\frac{1}{25}$
<p><math>\log_{16} x = \frac{1}{4}</math>  <math>16^{1/4} = x</math>  <math>\sqrt[4]{16} = x</math>  <math>x = 2</math></p>	2	<p><math>\log_2 64 = x</math>  <math>2^x = 64</math>  <math>2^x = 2^6</math>  <math>x = 6</math></p>	6	<p><math>\log_{\sqrt{5}} 5 = x</math>  <math>\sqrt{5}^x = 5</math>  <math>5^{1/2} x = 5^1</math>  <math>\frac{1}{2} x = 1</math>  <math>x = 2</math></p>	2	<p><b>STOP!</b></p> 