



# **Logarithm War Card Game**

**The Math Lab**

# Logarithm War

**Recommended Use:** After introducing and practicing solving logarithms, use Logarithm War as additional practice or review. Print 13-15 copies of the game so that your students can play in pairs. Have one class cut the cards, or do so ahead of time. Mark the back of each deck of cards with a different number or letter. This will keep your decks separate in case they are mixed together.

**Directions for 2 Players:** Deal all the cards between the two players. Players must keep their cards face down on their desk. The goal of the game is to win all the cards. Both players turn the top card face up and put them on the table. The players must evaluate the logarithm and whoever has the higher card takes both cards and puts them face down in the bottom of their pile. The players turn their next card and continue.

If both players turn cards that are equal, then there is a Logarithm War. The cards stay on the table and both players play one additional card face down, and then turn the next card in their pile. Whoever has the higher card keeps all six cards in play. The war continues on until one player wins. If a player runs out of cards during war, the other player wins.

The game continues until one player has all the cards. Encourage students to evaluate their partner's cards as well as their own. They need to check their partner's work to make sure the correct person wins each battle. If there is a discrepancy, have students raise their hands for teacher assistance.

$\log_5 125 = x$	$\log_3 27 = x$	$\log_2 8 = x$
$\log_4 2 = x$	$\log_9 3 = x$	$\log_{16} 4 = x$
$\log_2 \left(\frac{1}{2}\right) = x$	$\log_7 \left(\frac{1}{7}\right) = x$	$\log_5 \left(\frac{1}{5}\right) = x$
$\log_5 1 = x$	$\log_3 1 = x$	$\log_2 1 = x$
$\log_3 9 = x$	$\log_5 25 = x$	$\log_{12} 144 = x$
$\log_2 \left(\frac{1}{8}\right) = x$	$\log_3 \left(\frac{1}{27}\right) = x$	$\log_4 \left(\frac{1}{64}\right) = x$
$\log_2 16 = x$	$\log_3 81 = x$	$\log_4 \left(\frac{1}{256}\right) = x$

$\log_3 3 = x$	$\log_6 6 = x$	$\log_9 9 = x$
$\log_5 x = 1$	$\log_3 x = 1$	$\log_6 x = 1$
$\log_2 x = 3$	$\log_3 x = 3$	$\log_4 x = 3$
$\log_3 x = 2$	$\log_2 x = x$	$\log_5 x = 2$
$\log_3 x = -1$	$\log_2 x = -1$	$\log_6 x = -1$
$\log_9 x = \frac{1}{2}$	$\log_4 x = \frac{1}{2}$	$\log_{16} x = \frac{1}{2}$
$\log_5 x = 0$	$\log_9 x = 0$	$\log_{10} x = 0$

$\log_5 125 = x$ $x = 3$	$\log_3 27 = x$ $x = 3$	$\log_2 8 = x$ $x = 3$
$\log_4 2 = x$ $x = \frac{1}{2}$	$\log_9 3 = x$ $x = \frac{1}{2}$	$\log_{16} 4 = x$ $x = \frac{1}{2}$
$\log_2 \left(\frac{1}{2}\right) = x$ $x = -1$	$\log_7 \left(\frac{1}{7}\right) = x$ $x = -1$	$\log_5 \left(\frac{1}{5}\right) = x$ $x = -1$
$\log_5 1 = x$ $x = 0$	$\log_3 1 = x$ $x = 0$	$\log_2 1 = x$ $x = 0$
$\log_3 9 = x$ $x = 2$	$\log_5 25 = x$ $x = 2$	$\log_{12} 144 = x$ $x = 2$
$\log_2 \left(\frac{1}{8}\right) = x$ $x = -3$	$\log_3 \left(\frac{1}{27}\right) = x$ $x = -3$	$\log_4 \left(\frac{1}{64}\right) = x$ $x = -3$
$\log_2 16 = x$ $x = 4$	$\log_3 81 = x$ $x = 4$	$\log_4 \left(\frac{1}{256}\right) = x$ $x = 4$

$\log_3 3 = x$ $x = 1$	$\log_6 6 = x$ $x = 1$	$\log_9 9 = x$ $x = 1$
$\log_5 x = 1$ $x = 5$	$\log_3 x = 1$ $x = 3$	$\log_6 x = 1$ $x = 6$
$\log_2 x = 3$ $x = 8$	$\log_3 x = 3$ $x = 27$	$\log_4 x = 3$ $x = 64$
$\log_3 x = 2$ $x = 9$	$\log_2 x = 2$ $x = 4$	$\log_5 x = 2$ $x = 25$
$\log_3 x = -1$ $x = \frac{1}{3}$	$\log_2 x = -1$ $x = \frac{1}{2}$	$\log_6 x = -1$ $x = \frac{1}{6}$
$\log_9 x = \frac{1}{2}$ $x = 3$	$\log_4 x = \frac{1}{2}$ $x = 2$	$\log_{16} x = \frac{1}{2}$ $x = 4$
$\log_5 x = 0$ $x = 1$	$\log_9 x = 0$ $x = 1$	$\log_{10} x = 0$ $x = 1$