Cut out the 24 dominoes below. Match them into one continuous loop by simplifying the right hand side of each domino.

$\log(12)$	$\log(64)-\log(16)$	$\log(3)$	$\log_5(25)\times\log_{\frac{1}{3}}(3)$
$\log(7)$	$\log(2)-\log(5)$	$\log(5)$	$2\log(2)+3\log(3)$
$\log\left(\frac{2}{3}\right)$	$\log(7)+\log(3)$	$\log(0.4)$	$\log(6)-\log(3)$
$\log\left(\frac{1}{10}\right)$	$\log(343)-\log(49)$	$\log(21)$	$\log(15)-\log(5)$
$\log(4)$	$\log_3\left(\sqrt{3}\right)^5-\log_3\left(\sqrt{3}\right)$	$\log(6)$	$\log\left(\sqrt{8}\right)+\frac{1}{6}\log(8)+\log(2)$
$\log\left(\frac{1}{100}\right)$	$\log(6)+\log(2)$	$\log(11)$	$\log\left(\frac{1}{2}\right)+\log\left(\frac{2}{3}\right)+\log\left(\frac{3}{4}\right)$
$\log(24)$	$\log\left(\sqrt[5]{6}^4\right)+\frac{1}{5}\log(6)$	$\log(100)$	$3\log_5(25)+2\log_3(27)-4\log_2(8)$
$\log(56)$	$4\log(5)-\log(125)$	$\log(0.25)$	$\log\left(\frac{3}{2}\right)-\log\left(\frac{9}{4}\right)$
$\log(2)$	$\log_{\frac{8}{27}}\left(\frac{4}{9}\right)\times\log_4(8)$	$\log(9)$	$\frac{1}{2}\log(64)+\frac{1}{3}\log(343)$
$\log(1)$	$\log(63)-\log(7)$	$\log(8)$	$\log(25)-\log(10)-\log(5)$
$\log\left(\frac{1}{2}\right)$	$\log\left(\frac{6}{2}\right)-\log\left(\frac{3}{11}\right)$	$\log(10)$	$3\log(2)+\frac{1}{2}\log(9)$
$\log(108)$	$\log_{\frac{1}{7}}(49)+\log_2(32)$	$\log(1000)$	$\log(100)-\log(1000)$

Teaching notes

Students should be able to apply the **product**, **quotient** and **power** laws to simplify logarithms, and convert numbers in and out of logarithm form (for the two multiplication problems).

Students may take different approaches to each problem, sparking interesting class discussion.

e.g. $\log(64)-\log(16)=\log\left(\frac{64}{16}\right)$ [quotient rule]

$$\log(64)-\log(16)=\log\left(4^3\right)-\log\left(4^2\right)$$
$$=3\log(4)-2\log(4)$$
[power rule]

Answers (reading down the page)

$\log\left(\frac{2}{3}\right)$	$\log(7)+\log(3)$	$\log(1000)$	$\log(100)-\log(1000)$
$\log(21)$	$\log(15)-\log(5)$	$\log\left(\frac{1}{10}\right)$	$\log(343)-\log(49)$
$\log(3)$	$\log_5(25)\times\log_{\frac{1}{3}}(3)$	$\log(7)$	$\log(2)-\log(5)$
$\log\left(\frac{1}{100}\right)$	$\log(6)+\log(2)$	$\log(0.4)$	$\log(6)-\log(3)$
$\log(12)$	$\log(64)-\log(16)$	$\log(2)$	$\log_{\frac{8}{27}}\left(\frac{4}{9}\right)\times\log_4(8)$
$\log(4)$	$\log_3\left(\sqrt{3}\right)^5-\log_3\left(\sqrt{3}\right)$	$\log(10)$	$3\log(2)+\frac{1}{2}\log(9)$
$\log(100)$	$3\log_5(25)+2\log_3(27)-4\log_2(8)$	$\log(24)$	$\log\left(\sqrt[5]{6}^4\right)+\frac{1}{5}\log(6)$
$\log(1)$	$\log(63)-\log(7)$	$\log(6)$	$\log\left(\sqrt{8}\right)+\frac{1}{6}\log(8)+\log(2)$
$\log(9)$	$\frac{1}{2}\log(64)+\frac{1}{3}\log(343)$	$\log(8)$	$\log(25)-\log(10)-\log(5)$
$\log(56)$	$4\log(5)-\log(125)$	$\log\left(\frac{1}{2}\right)$	$\log\left(\frac{6}{2}\right)-\log\left(\frac{3}{11}\right)$
$\log(5)$	$2\log(2)+3\log(3)$	$\log(11)$	$\log\left(\frac{1}{2}\right)+\log\left(\frac{2}{3}\right)+\log\left(\frac{3}{4}\right)$
$\log(108)$	$\log_{\frac{1}{7}}(49)+\log_2(32)$	$\log(0.25)$	$\log\left(\frac{3}{2}\right)-\log\left(\frac{9}{4}\right)$