INKMATHS FLASHCARDS

Indices and log laws

6 cards · fronts and backs

Print double-sided, flipping on the long edge, and each answer lands behind its question. Cut along the card borders.

Definitions in precise wording, the standard results the formulae booklet does not print, a check-yourself question per topic, and the slips that lose marks. The same cards run on the website with spaced-repetition scheduling, at inkmaths.co.uk/flashcards.

STANDARD RESULT

Product law:

$\log_a x + \log_a y = ?$

INDICES AND LOG LAWS

STANDARD RESULT

Quotient law:

$\log_a x - \log_a y = ?$

INDICES AND LOG LAWS

STANDARD RESULT

Power law:

$k \log_a x = ?$

INDICES AND LOG LAWS

DEFINITION

Define: Logarithm.

INDICES AND LOG LAWS

CHECK YOURSELF

Write 2 log 3 + log 4 as a single logarithm.

INDICES AND LOG LAWS

SPOT THE ERROR

Say what is wrong with this claim:

log(x + y) is the same as log x + log y.

INDICES AND LOG LAWS

STANDARD RESULT

$\log_a x - \log_a y = \log_a (x)/(y)$

INDICES AND LOG LAWS

STANDARD RESULT

$\log_a x + \log_a y = \log_a (xy)$

INDICES AND LOG LAWS

DEFINITION

log to base a of x is the power to which a must be raised to give x: if a^y = x then y equals log base a of x, for a > 0, a ≠ 1 and x > 0.

INDICES AND LOG LAWS

STANDARD RESULT

$k \log_a x = \log_a (x^k)$

INDICES AND LOG LAWS

SPOT THE ERROR

The product law says log x + log y = log(xy): logs turn products into sums, not sums into sums. log(x + y) does not simplify. Try x = y = 10: log 20 is about 1.3, but log 10 + log 10 = 2.

INDICES AND LOG LAWS

CHECK YOURSELF

2 log 3 = log 9, and log 9 + log 4 = log 36.

INDICES AND LOG LAWS