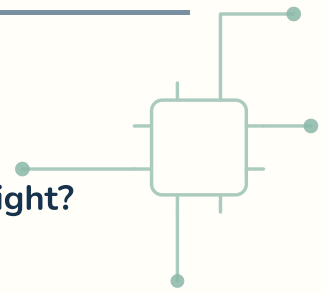


Algebra reasoning — Logarithm laws

Name: _____

Date: _____

Read each line of working and choose the answer that is correct.



1 Spot the mistake: $\log(x^4) + \log(x^5) = 20(\log x)^2$. Which answer is right?

$\log(x^4 + x^5)$

$20 \log x$

$20(\log x)^2$

$9 \log x$

Why? the two logs were multiplied once their powers had come down.

2 Check this line: $\log(3x) - \log 3 = \log x$. Which is correct?

$\log x$

$\log 3 - \log x$

$\log x \div \log 3$

$3 \log x$

Why?

3 Check this line: $\log(x^2) + \log(x^5) = 7 \log x$. Which is correct?

$\log(x^2 + x^5)$

$10 \log x$

$7 \log x$

$10(\log x)^2$

Why?

4 Check this line: $\log(14x) - \log 14 = 14 \log x$. Which is correct?

$\log x \div \log 14$

$\log x$

$14 \log x$

$\log 14 - \log x$

Why?



Algebra reasoning · Logarithm laws — Answer key

1. $\log(x^4) + \log(x^5) = 9 \log x$, not $20(\log x)^2$ (the two logs were multiplied once their powers had come down)

2. $\log(3x) - \log 3 = \log x$, which is what was written — this line is correct

3. $\log(x^2) + \log(x^5) = 7 \log x$, which is what was written — this line is correct

4. $\log(14x) - \log 14 = \log x$, not $14 \log x$ (the multiplier inside the log was brought down as a power)

