

6.5 Properties of Logarithmic Functions and Change of Base Formula DAY ONE CYU

Use when you get it right all by yourself
S Use when you did it all by yourself, but made a silly mistake
H Use when you could do it alone with a little help from teacher or peer
G Use when you completed the problem in a group
X Use when a question was attempted but wrong (get help)
N Use when a question was not even attempted

CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Properties of Logarithms		1 - 12	
Expanding Logarithms		1 - 6	
Condensing Logarithms		7 - 12	
Change of Base Formula	13 - 16		
CRF	1 - 16		
Rounding	13 - 16		

Properties of Logarithmic Functions:

Expand each logarithmic expression completely. No decimals.

1. $\log\left(\frac{6}{11}\right)^5$

$5(\log 6) - 5 \log 11$

2. $\log(3 \cdot 2^3)$

$\log 3 + 3 \log 2$

3. $\log \frac{2^4}{5}$

$4 \log 2 - \log 5$

4. $\log \frac{x}{y^6}$

$\log x - 6 \log y$

5. $\log(a \cdot b)^2$

$2 \log a + 2 \log b$

6. $\log \sqrt[3]{x \cdot y \cdot z}$

$\frac{1}{3} \log x + \frac{1}{3} \log y + \frac{1}{3} \log z$

Condense the logarithmic expression into a single logarithm.

7. $4 \log 3 - 4 \log 8$

$\log \frac{81}{4096}$

8. $\log 2 + \log 11 + \log 7$

$\log 154$

9. $\frac{2 \log 7}{3}$

$\frac{\log 7^2}{3}$

10. $6 \log_3 u - 6 \log_3 v$

$\log_3 \left(\frac{u}{v}\right)^6$

11. $20 \log_6 u + 5 \log_6 v$

$\log_6 u^{20} v^5$

12. $\ln x - 4 \ln y$

$\ln \frac{x}{y^4}$

Change of Base Formula

Write your answer in CRF and rounded to the 1000th place.

13. $\log_4 5$

$$\frac{\log 5}{\log 4}$$
$$\approx 1.161$$

14. $\log_2 2.1$

$$\frac{\log 2.1}{\log 2}$$
$$\approx 1.070$$

15. $\log_6 3.55$

$$\frac{\log 3.55}{\log 6}$$
$$\approx 0.707$$

16. $\log_6 13$

$$\frac{\log 13}{\log 6}$$
$$\approx 1.432$$

CYU Reflection: How far can you go: basic, intermediate, or advanced?

Rate your mastery level!

How confident are you with the skills this CYU covered? Circle the score you would give yourself.

