LKS SIFAT-SIFAT LOGARITMA

NAMA SISWA : **KELAS :**

PETUNJUK

Setelah mempelajari materi dan memahamivideo pembelajaran, silakan lengkapi titik-titik berikut

Sifat Umum :

- $^{a}\log a = 1$

  hitunglah

  - $^{3}\log 3 = 1$
  - $^{5}\log 5 = \ldots..$
  - $\log 10 = \ldots.$

- $\log b = {}^{10}\log b$

  contoh $\log 5 = \ldots.?$

  Jawab : $\log 5 = {}^{\cdots}\log \ldots.$

- $^{a}\log^{2} b = {}^{a}\log b \times {}^{a}\log b$

  contoh : $^{3}\log^{2}5 = \ldots.?$

  Jawab : $^{3}\log^{2}5 = {}^{3}\log \ldots \times {}^{3}\log \ldots.$

SIFAT KHUSUS

Sifat 1

$^{a}\log x + {}^{a}\log y = {}^{a}\log xy$

Sederhanakanlah !

- $^{2}\log 4 + {}^{2}\log 8 = {}^{2}\log (\ldots..x\ldots..) = {}^{2}\log \ldots.$
- $^{3}\log \frac{1}{9} + {}^{3}\log 81 = {}^{3}\log (\ldots.. \times \ldots..) = {}^{3}\log .$
- $^{2}\log 3p = {}^{2}\log (\ldots.x \ldots.) = {}^{2}\log \ldots. + {}^{2}\log \ldots.$

Sifat 2

$^{a}\log x - {}^{a}\log y = {}^{a}\log \frac{x}{y}$

Sederhanakanlah!

- $^{2}\log 16 - {}^{2}\log 8 = {}^{2}\log \frac{\ldots..}{\ldots..} = {}^{2}\log \ldots..$
- $\log 1.000 - \log 100 = \log \frac{\ldots..}{\ldots..} = \log \ldots..$

LEMBAR KERJA SISWA (LKS)

Sifat 3

$^a\log x^n = n \cdot {}^a\log x$

Sederhanakan!

- $2 \log 3 + 4 \log 3 = \log 3^{\cdots} + \log 3^{\cdots}$

  $= \log \ldots\ldots + \log \ldots\ldots$

  $= \log (\ldots\ldots x \ldots\ldots)$ (Gunakan sifat 1)

  $= \log \ldots\ldots$

- $2 \log a + 2 \log b = \log a^{\cdots} + \log b^{\cdots}$

  $= \log (\ldots x \ldots\ldots)$

Sifat 4

- $^a\log x = \frac{^c\log x}{^c\log a}$
- $^g\log a = \frac{1}{^a\log g}$
- $^3\log 7 \times {}^7\log 81 = \frac{\log 7}{\log \ldots\ldots} \times \frac{\log \ldots\ldots}{\log 7}$

  $= \frac{\log \ldots\ldots}{\log \ldots\ldots}$ → Rubah bilangan ini jadi pangkat. $\ldots\ldots = 3^{\cdots}$

  $= \frac{\log 3^{\cdots}}{\log \ldots\ldots}$ ← Gunakan sifat 3

  $= \frac{\ldots . \log \ldots\ldots}{\log \ldots\ldots} = \ldots\ldots$

LEMBAR KERJA SISWA (LKS)

Sifat 4

- $^{a}\log x = \dfrac{^{c}\log x}{^{c}\log a}$

$$^{3}\log 81 = \frac{\log \ldots\ldots}{\log \ldots\ldots}$$

gunakan sifat 3 $= \dfrac{\log \ldots\ldots}{\log \ldots\ldots}$

$= \dfrac{\log 3^{\ldots\ldots}}{\log \ldots\ldots}$

$= \dfrac{\ldots\ldots\log \ldots\ldots}{\log \ldots\ldots} = \ldots\ldots$

Sifat 5

$a^{\,^{a}\log x} = x$

- $4^{\,^{2}\log 5} = (\ldots\ldots^{2})^{^{2}\log 5} = (\ldots\ldots^{\,^{2}\log 5})^{2} = \ldots^{2} = \ldots\ldots$
- $\sqrt{3}^{\,^{3}\log 2} = (\ldots\ldots^{1/2})^{^{3}\log 2} = (\ldots\ldots^{\,^{3}\log 2})^{\frac{1}{2}} = \ldots\ldots^{\frac{1}{2}} = \sqrt{\ldots\ldots}$

Sifat 6

$$^{p^n}\log a^m = \frac{m}{n}\,{}^{p}\log a$$

- $^{8}\log 16 = {}^{2^3}\log \ldots\ldots^{4} = \frac{\ldots\ldots}{\ldots\ldots}\,{}^{2}\log 2 = \frac{\ldots\ldots}{\ldots\ldots} x \ldots\ldots = \frac{\ldots\ldots}{\ldots\ldots}$

- $^{8}\log 64 = {}^{\ldots\ldots^3}\log \ldots^{6} = \frac{6}{\ldots\ldots}.{}^{2}\log \ldots\ldots = \frac{6}{\ldots\ldots} x \ldots = \ldots\ldots$

- $^{3}\log 5 = a$, maka :

$$^{25}\log 27 = {}^{5^2}\log \ldots^{3} = \frac{3}{\ldots}.{}^{5}\log \ldots\ldots = \frac{3}{\ldots\ldots}.\frac{1}{{}^{3}\log 5} = \frac{3}{\ldots\ldots}.\frac{1}{\ldots\ldots} = \frac{3}{\ldots\ldots a}$$

Sifat 7

$$^{a}\log b.{}^{b}\log c.{}^{c}\log d = {}^{a}\log d$$

- $^{2}\log 3.{}^{3}\log 5 = {}^{2}\log \ldots.$

- $^{3}\log 2.{}^{2}\log 5.{}^{5}\log 3 = {}^{3}\log \ldots\ldots = \ldots\ldots$