

LKS SIFAT-SIFAT LOGARITMA

NAMA SISWA :

KELAS :

PETUNJUK

Setelah mempelajari materi dan memahami video pembelajaran, silakan lengkapi titik-titik berikut

Sifat Umum :

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

hitunglah

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

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

contoh $\log 5 = \dots?$

Jawab : $\log 5 = \dots \log \dots$

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

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

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

SIFAT KHUSUS

Sifat 1

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

Sederhanakanlah !

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

Sifat 2

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

Sederhanakanlah!

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

LEMBAR KERJA SISWA (LKS)

Sifat 3

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

Sederhanakan!

- $2 \log 3 + 4 \log 3 = \log 3^{\dots\dots} + \log 3^{\dots\dots}$
 $= \log \dots\dots + \log \dots\dots$
 $= \log (\dots\dots \times \dots\dots)$ (Gunakan sifat 1)
 $= \log \dots\dots$
- $2 \log a + 2 \log b = \log a^{\dots\dots} + \log b^{\dots\dots}$
 $= \log (\dots\dots \times \dots\dots)$

Sifat 4

$$\bullet \quad {}_a\log x = \frac{{}_c\log x}{{}_c\log a}$$

$$\bullet \quad {}_g\log a = \frac{1}{{}_a\log g}$$

$$\bullet \quad {}^3\log 7 \times {}^7\log 81 = \frac{\cancel{\log 7}}{\log \dots\dots} \times \frac{\log \dots\dots}{\cancel{\log 7}}$$

$$= \frac{\log \dots\dots}{\log \dots\dots}$$

Rubah bilangan ini jadi pangkat. $\dots\dots = 3^{\dots\dots}$

Gunakan sifat 3

$$= \frac{\log 3^{\dots\dots}}{\log \dots\dots}$$

$$= \frac{\dots\dots \log \dots\dots}{\log \dots\dots} = \dots\dots$$

LEMBAR KERJA SISWA (LKS)

Sifat 4

$$\bullet {}^a\log x = \frac{{}^c\log x}{{}^c\log a}$$

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

$$\boxed{\text{gunakan sifat 3}} = \frac{\log \dots\dots}{\log \dots\dots}$$

$$= \frac{\log 3 \dots\dots}{\log \dots\dots}$$

$$= \frac{\dots\dots \log \dots\dots}{\log \dots\dots} = \dots\dots$$

Sifat 5

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

$$\bullet 4^{2 \log 5} = (\dots\dots^2)^{2 \log 5} = (\dots\dots^{2 \log 5})^2 = \dots\dots^2 = \dots\dots$$

$$\bullet \sqrt{3}^{3 \log 2} = (\dots\dots^{\frac{1}{2}})^{3 \log 2} = (\dots\dots^{3 \log 2})^{\frac{1}{2}} = \dots\dots^{\frac{1}{2}} = \sqrt{\dots\dots}$$

Sifat 6

$${}_p^r \log a^m = \frac{m}{n} {}_p \log a$$

$$\bullet \quad {}^8 \log 16 = {}^{2^3} \log \dots^4 = \frac{\dots}{\dots} {}^2 \log 2 = \frac{\dots}{\dots} \times \dots = \dots$$

$$\bullet \quad {}^8 \log 64 = \dots^3 \log \dots^6 = \frac{6}{\dots} {}^2 \log \dots = \frac{6}{\dots} \times \dots = \dots$$

$$\bullet \quad {}^3 \log 5 = a, \text{ maka :}$$

$${}^{25} \log 27 = {}^{5^2} \log \dots^3 = \frac{3}{\dots} {}^5 \log \dots = \frac{3}{\dots} \cdot \frac{1}{{}^3 \log 5} = \frac{3}{\dots} \cdot \frac{1}{\dots} = \frac{3}{\dots a}$$

Sifat 7

$${}_a \log b \cdot {}_b \log c \cdot {}_c \log d = {}_a \log d$$

$$\bullet \quad {}^2 \log 3 \cdot {}^3 \log 5 = {}^2 \log \dots$$

$$\bullet \quad {}^3 \log 2 \cdot {}^2 \log 5 \cdot {}^5 \log 3 = {}^3 \log \dots = \dots$$