

LEMBAR KERJA PESERTA DIDIK

NAMA ANGGOTA KELOMPOK

1.
2.
3.
4.
5.

Tujuan Pembelajaran : 1. Menemukan sifat-sifat eksponen

2. Menggunakan sifat-sifat eksponen dalam menentukan penyelesaian masalah

Sifat Eksponen 1

a. $2^2 \times 2^3 = (2 \times 2) \times (2 \times 2 \times 2)$


2 faktor 3 faktor

$$= 2 \times 2 \times 2 \times 2 \times 2$$


5 faktor

$$= 2^5 = 2^{2+3}$$

b. $3^3 \times 3^4 = (3 \times 3 \times 3) \times (3 \times 3 \times 3 \times 3)$


3 faktor 4 faktor

$$= 3 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3$$


..... faktor

$$= \dots\dots\dots = \dots\dots\dots + \dots\dots\dots$$

$$\begin{aligned}
 \text{c. } 5^3 \times 5^2 &= (\underbrace{\dots \times \dots \times \dots}_{\text{..... faktor}}) \times (\underbrace{\dots \times \dots}_{\text{..... faktor}}) \\
 &= \dots \times \dots \times \dots \times \dots \times \dots \\
 &\quad \text{..... faktor} \\
 &= \dots = \dots + \dots
 \end{aligned}$$

$$\begin{aligned}
 \text{d. } a^3 \times a^4 &= (\underbrace{\dots \times \dots \times \dots}_{\text{..... faktor}}) \times (\underbrace{\dots \times \dots \times \dots \times \dots}_{\text{..... faktor}}) \\
 &= \underbrace{\dots \times \dots \times \dots \times \dots \times \dots \times \dots \times \dots}_{\text{..... faktor}} \\
 &= \dots = \dots + \dots
 \end{aligned}$$

$$\begin{aligned}
 \text{e. } a^m \times a^n &= (\underbrace{a \times a \times a \times \dots \times a}_{\text{m faktor}}) \times (\underbrace{a \times a \times a \times \dots \times a}_{\text{n faktor}}) \\
 &= \underbrace{(a \times a \times a \times a \times a \times a \times a \dots \times a)}_{\text{m + n faktor}} \\
 &= \dots = \dots + \dots
 \end{aligned}$$

Sifat Eksponen 2

$$\text{a. } \frac{2^5}{2^3} = \frac{\overbrace{(2 \times 2 \times 2 \times 2 \times 2)}^{5 \text{ faktor}}}{\underbrace{(2 \times 2 \times 2)}_{3 \text{ faktor}}}$$

$$= \frac{2 \times 2 \times 2 \times 2 \times 2}{2 \times 2 \times 2}$$

$$= 2^2 = 2^{5-3}$$

$$\text{b. } \frac{3^6}{3^2} = \frac{\overbrace{(3 \times 3 \times 3 \times 3 \times 3 \times 3)}^{6 \text{ faktor}}}{\underbrace{(3 \times 3)}_{2 \text{ faktor}}}$$

$$= \frac{3 \times 3 \times 3 \times 3 \times 3 \times 3}{3 \times 3}$$

$$= 3^4 = 3^{6-2}$$

$$\text{c. } \frac{5^3}{5^2} = \frac{(\dots \times \dots \times \dots)}{(\dots \times \dots)}$$

$$= \frac{\dots \times \dots \times \dots}{\dots \times \dots}$$

$$= \dots = \dots - \dots$$

$$d. \frac{a^4}{a^3} = \frac{(\dots\dots \times \dots\dots \times \dots\dots \times \dots\dots)}{(\dots\dots \times \dots\dots \times \dots\dots)}$$

$$= \frac{\dots\dots \times \dots\dots \times \dots\dots \times \dots\dots}{\dots\dots \times \dots\dots \times \dots\dots}$$

$$= \dots\dots\dots = \dots\dots\dots$$

$$e. \frac{a^m}{a^n} = \frac{(a \times a \times a \times \dots \times a)}{(a \times a \times a \times \dots \times a)}$$

$$= a^{\dots\dots\dots}$$

Sifat Eksponen 3

$$a. (2^3)^2 = 2^3 \times 2^3$$

$$= (2 \times 2 \times 2) \times (2 \times 2 \times 2)$$

$$= 2^6 = 2^{3 \times 2}$$

$$b. (3^2)^3 = \dots\dots\dots^2 \times \dots\dots\dots^2 \times \dots\dots\dots^2$$

$$= (\dots\dots \times \dots\dots) \times (\dots\dots \times \dots\dots) \times (\dots\dots \times \dots\dots)$$

$$= \dots\dots\dots^6 = \dots\dots\dots^{2 \times 3}$$

$$c. (a^3)^4 = \dots \times \dots \times \dots \times \dots$$

$$= (\dots \times \dots \times \dots) \times (\dots \times \dots \times \dots) \times (\dots \times \dots \times \dots) \times (\dots \times \dots \times \dots)$$

$$= \dots = \dots \times \dots$$

$$d. (a^m)^n = \underbrace{\dots \times \dots \times \dots \times \dots}_{n \text{ faktor}}$$

n faktor

$$= \dots = \dots \times \dots$$

Sifat Eksponen 4

$$a. (2 \times 3)^2 = (2 \times 3) \times (2 \times 3)$$

$$= 2 \times 3 \times 2 \times 3$$

$$= 2 \times 2 \times 3 \times 3$$

$$= 2^2 \times 3^2$$

$$b. (5 \times 7)^3 = (5 \times 7) \times (5 \times 7) \times (5 \times 7)$$

$$= 5 \times 7 \times 5 \times 7 \times 5 \times 7$$

$$= \dots \times \dots \times \dots \times \dots \times \dots \times \dots$$

$$= \dots \times \dots$$

c. $(a \times b)^3 = (\dots \times \dots) \times (\dots \times \dots) \times (\dots \times \dots)$

$$= \dots \times \dots \times \dots \times \dots \times \dots \times \dots$$

$$= \dots \times \dots \times \dots \times \dots \times \dots \times \dots$$

$$= \dots \times \dots$$

d. $(a \times b)^m = (\dots \times \dots) \times (\dots \times \dots) \times (\dots \times \dots)$



sebanyak m faktor

$$= \dots \times \dots \times \dots \times \dots \times \dots \times \dots$$

$$= \dots \times \dots \times \dots \times \dots \times \dots \times \dots$$

$$= \dots \times \dots$$

Sifat Eksponen 5

$$a. \left(\frac{3}{2}\right)^2 = \left(\frac{3}{2}\right) \times \left(\frac{3}{2}\right)$$

$$= \frac{3 \times 3}{2 \times 2}$$

$$= \frac{3^2}{2^2}$$

$$b. \left(\frac{2}{5}\right)^3 = \left(\frac{\dots\dots\dots}{\dots\dots\dots}\right) \times \left(\frac{\dots\dots\dots}{\dots\dots\dots}\right) \times \left(\frac{\dots\dots\dots}{\dots\dots\dots}\right)$$

$$= \frac{\dots\dots\dots \times \dots\dots\dots \times \dots\dots\dots}{\dots\dots\dots \times \dots\dots\dots \times \dots\dots\dots}$$

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

$$c. \left(\frac{a}{b}\right)^m = \underbrace{\left(\frac{\dots\dots\dots}{\dots\dots\dots}\right) \times \left(\frac{\dots\dots\dots}{\dots\dots\dots}\right) \times \left(\frac{\dots\dots\dots}{\dots\dots\dots}\right)}_{\text{sebanyak m faktor}}$$

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

Latihan

Dengan menerapkan sifat-sifat bilangan eksponen, Sederhanakanlah soal dibawah ini!

$$\left(\frac{2a^2b^{-1}c}{4ab^4c^{-2}}\right)^2$$

Kerjakan di buku masing-masing!