

Eksponen dan Logaritma – Sifat-sifat Eksponen

Eksponen

$$a^n = \underbrace{a \times a \times a \times \cdots \times a}_{n \text{ faktor}}$$

Perhatikan Uraian Berikut:

$$1. a^m \times a^n = \underbrace{a \times a \times a \times \cdots \times a}_{m \text{ faktor}} \times \underbrace{a \times a \times a \times \cdots \times a}_{n \text{ faktor}} = \underbrace{a \times a \times a \times \cdots \times a}_{m+n \text{ faktor}} = a^{m+n}$$

$$2. \frac{a^m}{a^n} = \frac{\underbrace{a \times a \times a \times \cdots \times a}_{m \text{ faktor}}}{\underbrace{a \times a \times \cdots \times a}_{n \text{ faktor}}} = \underbrace{a \times a \times a \times \cdots \times a}_{m-n \text{ faktor}} = a^{m-n}$$

$$3. (ab)^m = \underbrace{ab \times ab \times ab \times \cdots \times ab}_{m \text{ faktor}} = \underbrace{a \times a \times a \times \cdots \times a}_{m \text{ faktor}} \times \underbrace{b \times b \times b \times \cdots \times b}_{m \text{ faktor}} = a^m b^m$$

$$4. \left(\frac{a}{b}\right)^m = \underbrace{\left(\frac{a}{b}\right) \times \left(\frac{a}{b}\right) \times \left(\frac{a}{b}\right) \times \cdots \times \left(\frac{a}{b}\right)}_{m \text{ faktor}} = \frac{\underbrace{a \times a \times a \times \cdots \times a}_{m \text{ faktor}}}{\underbrace{b \times b \times b \times \cdots \times b}_{m \text{ faktor}}} = \frac{a^m}{b^m}; b \neq 0$$

$$5. (a^m)^n = \underbrace{a^m \times a^m \times \cdots \times a^m}_{n \text{ faktor}} = \underbrace{a \times a \times \cdots \times a}_{m \text{ faktor}} \times \underbrace{a \times a \times \cdots \times a}_{m \text{ faktor}} \times \cdots \times \underbrace{a \times a \times \cdots \times a}_{m \text{ faktor}} = \underbrace{a \times a \times \cdots \times a}_{m \times n \text{ faktor}} = a^{m \cdot n}$$

Diperoleh Sifat-sifat Eksponen:

$$1. a^m \times a^n = a^{m+n}$$

$$2. \frac{a^m}{a^n} = a^{m-n}$$

$$3. (ab)^m = a^m b^m$$

$$4. \left(\frac{a}{b}\right)^m = \frac{a^m}{b^m}; b \neq 0$$

$$5. (a^m)^n = a^{m \cdot n}$$

STRIKED

MATEMATIKA

Sifat-sifat Eksponen