PRAKTIS 1

Indeks
Indices

Nota Progresif

Indeks/*Indices*

$a^n = a \times a \times a \times \ldots \times a$, a = asas/*base*, n = indeks/*index*

Pendaraban/*Multiplication*

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

$a^m \times b^n \times a^x = a^{m+x} \times b^n$

Pembahagian/*Division*

$a^m \div a^n = a^{m-n}$

Kuasa/*Power*

$(a^m)^n = a^{mn}$

$(a^m \times a^n)^p = a^{mp} \times a^{np}$

$\left(\frac{a^m}{b^n}\right)^p = \frac{a^{mp}}{b^{np}}$

Indeks pecahan/*Fractional indices*

$a^{\frac{1}{n}} = \sqrt[n]{a}$

$a^{\frac{m}{n}} = (a^m)^{\frac{1}{n}} = \left(a^{\frac{1}{n}}\right)^m$

$a^{\frac{m}{n}} = \sqrt[n]{a^m} = (\sqrt[n]{a})^m$

Indeks negatif/*Negative indices*

$a^{-n} = \frac{1}{a^n}; a \neq 0$

$\left(\frac{a}{b}\right)^{-n} = \left(\frac{b}{a}\right)^n$

Bahagian A

1.1 Tatatanda Indeks
Index Notation

1 $p \times p \times p \times p \times p =$

A $5p$
B 5^p
C p^5
D p^{-5}

2 Antara pernyataan berikut, yang manakah adalah benar?
Which of the following statements is true?

A $\frac{2}{3} \times \frac{2}{3} \times \frac{2}{3} \times \frac{2}{3} = 4 \times \frac{2}{3}$

B $(-2) \times (-2) \times (-2) \times (-2) \times (-2) = 2^5$

C $\frac{3}{4} \times \frac{3}{4} \times \frac{3}{4} = \frac{3^3}{4}$

D $6 \times 6 \times 6 \times 6 \times 6 \times 6 = 6^6$

3 $4\,096 =$

A 2^{10}
B 4^7
C 8^5
D 16^3

4 KBAT $\left(-2\frac{2}{3}\right)^3 =$

A -18.9
B $-\frac{512}{27}$
C $18\frac{26}{27}$
D $-\frac{24}{9}$

1.2 Hukum Indeks
Law of Indices

5 Permudahkan/*Simplify*.
$-2y^4 \times 4y^3 \times y^5$

A $-8y^{12}$
B $8y^{12}$
C -2^3y^{60}
D 2^3y^{12}

6 $4m^5 \times 6m^7 =$

A $12m^{24}$ C $24m^{12}$

B $10m^{12}$ D $24m^{35}$

7 $(2k^{\frac{1}{3}})^6 =$

A $2k^2$ C $64k^6$

B $64k^2$ D $12k^2$

8 Antara berikut, yang manakah sama dengan w^8?
Which of the following is equal to w^8?

A $(w^4)^2$

B $(w^2)^{-4}$

C $w^2 \div w^6$

D $w^7 \times w^{-1}$

9 $(4x^2y^{-1})^3 \div 2xy^2 =$

A $32x^5y^{-5}$

B $32x^5y^{-6}$

C $128x^5y^{-5}$

D $128x^5y$

10 Ringkaskan/*Simplify*.

$$\frac{(p^2q^4)^{-1}}{p^{-4}q^3}$$

A $p^{-2}q^7$ C $p^{-6}q^{-1}$

B p^2q^{-7} D p^6q

11 KBAT Diberi bahawa $\frac{1}{x^n} = 4^{-2}$, cari nilai x dan n
Given that $\frac{1}{x^n} = 4^{-2}$, find the value of x and of n.

A $x = 2, n = -4$

B $x = 2, n = 4$

C $x = 4, n = -2$

D $x = 4, n = 2$

12 KBAT Diberi $25^{\frac{3}{4}} = \sqrt[m]{25^n}$, nyatakan nilai m dan n
Given $25^{\frac{3}{4}} = \sqrt[m]{25^n}$, state the value of m and of n.

A $m = 4$ dan/*and* $n = 3$

B $m = 3$ dan/*and* $n = 4$

C $m = 4$ dan/*and* $n = \frac{1}{3}$

D $m = 3$ dan/*and* $n = \frac{1}{4}$

13 KBAT $\sqrt{\left(\frac{5}{7}\right)^{-3}} =$

A $\left(\frac{7}{5}\right)^{\frac{3}{2}}$

B $\left(\frac{7}{5}\right)^{-\frac{3}{2}}$

C $\left(\frac{7}{5}\right)^{\frac{2}{3}}$

D $\left(\frac{7}{5}\right)^{-\frac{3}{2}}$