

TINGKATAN 3

BAB 1

Praktis Sumatif

Bahagian A

$$\begin{aligned} 1 \quad (p^{-2}q)^3 \times (2p^3q^{-1})^2 &= p^{-6}q^3 \times 4p^6q^{-2} \\ &= 4p^{-6+6}q^{3+(-2)} \\ &= 4p^0q \\ &= 4q \end{aligned}$$

Jawapan: C

$$\begin{aligned} 2 \quad (8 \times 3^{-6})^{\frac{1}{3}} \div 27^{-\frac{2}{3}} &= (2^3 \times 3^{-6})^{\frac{1}{3}} \div (3^3)^{-\frac{2}{3}} \\ &= 2^{3 \times \frac{1}{3}} \times 3^{-6 \times \frac{1}{3}} \div (3^3)^{-\frac{2}{3}} \\ &= 2^1 \times 3^{-2} \div 3^{-2} \\ &= 2^1 \times 3^{-2-(-2)} \\ &= 2 \times 3^0 \\ &= 2 \end{aligned}$$

Jawapan: C

$$3 \quad m^{\frac{2}{5}} = (m^2)^{\frac{1}{5}} = \sqrt[5]{m^2}$$

Jawapan: D

$$4 \quad \frac{7}{5x^6} = \frac{7}{5}x^{-6}$$

Jawapan: A

$$\begin{aligned} 5 \quad 3^n \times 81 &= 3^{-2} \\ 3^n \times 3^4 &= 3^{-2} \\ 3^{n+4} &= 3^{-2} \\ n+4 &= -2 \\ n &= -2-4 = -6 \end{aligned}$$

Jawapan: A

$$\begin{aligned} 6 \quad 2^5 \div 4^m &= \frac{1}{8} \\ 2^5 \div 4^m &= \frac{1}{2^3} \\ 2^5 \div 2^{2m} &= 2^{-3} \\ 2^{5-2m} &= 2^{-3} \\ 5-2m &= -3 \\ -2m &= -8 \\ m &= 4 \end{aligned}$$

Jawapan: D

$$\begin{aligned} 7 \quad \left[\frac{64m^3}{n^6} \right]^{\frac{1}{3}} \div m^2n^3 &= 64^{\frac{1}{3}}m^{\frac{3}{3} \times \frac{1}{3}}n^{-6 \times \frac{1}{3}} \div m^2n^3 \\ &= 4m^{1-2}n^{-2-3} \\ &= 4m^{-1}n^{-5} \\ &= \frac{4}{mn^5} \end{aligned}$$

Jawapan: B

$$\begin{aligned} 8 \quad \left(\frac{1}{6} \right)^{-\frac{2}{3}} &= \left(\frac{1}{36} \right)^{-\frac{1}{3}} \\ &= \frac{1}{\left(\frac{1}{36} \right)^{\frac{1}{3}}} \end{aligned}$$

$$\begin{aligned} &= \left[\frac{1}{\left(\frac{1}{36} \right)} \right]^{\frac{1}{3}} \\ &= 36^{\frac{1}{3}} \\ &= \sqrt[3]{36} \end{aligned}$$

Jawapan: C

Bahagian B

$$\begin{aligned} 1 \quad (a) \quad a^4 \times a^2 &= a^{4+2} = a^6 \neq a^8 \\ &\text{Palsu} \\ (b) \quad b^6 \div b^{-2} &= b^{6-(-2)} = b^8 \\ &\text{Benar} \\ (c) \quad (p^2)^4 &= p^{2 \times 4} = p^8 \\ &\text{Benar} \\ (d) \quad q^{\frac{2}{3}} &= (q^2)^{\frac{1}{3}} = \sqrt[3]{q^2} \neq \sqrt{q^3} \\ &\text{Palsu} \end{aligned}$$

$$\begin{aligned} 2 \quad (a) \quad p^4 &= p \times p \times p \times p \\ &\text{Benar} \\ (b) \quad k^0 &= 1 \text{ jika } k \neq 0 \\ &\text{Benar} \\ (c) \quad 3h^{-5} &= \frac{3}{h^5} = \frac{3}{3h^5} \\ &\text{Palsu} \\ (d) \quad \sqrt[4]{8} &= (8)^{\frac{1}{4}} = (2^3)^{\frac{1}{4}} = 2^{\frac{3}{4}} \\ &\text{Benar} \end{aligned}$$

Bahagian C

$$\begin{aligned} 1 \quad (a) \quad \frac{a^2b^4 \times a^3b^{\frac{3}{2}}}{a^3b^{\frac{3}{2}}} &= a^{2+3-3}b^{4+\frac{3}{2}-\frac{3}{2}} \\ &= a^2b^4 \\ (b) \quad (i) \quad \left(\frac{2c^2}{d} \right)^5 \div 8c^5d &= \frac{2^5c^{2 \times 5}}{d^5} \times \frac{1}{8c^5d} \\ &= \frac{32c^{10}}{d^5} \times \frac{1}{8c^5d} \\ &= \frac{32c^{10}}{8c^5d^6} \\ &= \frac{4c^5}{d^6} \\ (ii) \quad \frac{(2a^2b^{-3})^3 \times a^{\frac{5}{2}}b^4}{8a^{\frac{1}{2}}b^2} \\ &= \frac{8a^6b^{-9} \times a^{\frac{5}{2}}b^4}{8a^{\frac{1}{2}}b^2} \\ &= a^{6+\frac{5}{2}-\frac{1}{2}}b^{-9+4-2} \\ &= a^8b^{-7} \end{aligned}$$