

Latihan Soal Dan Pembahasan

Mata Ujian : Matematika Dasar



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Latihan untuk Seleksi Kedokteran :

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Pembahasan Soal

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1. **Jawab: B**

$$\begin{aligned}\sqrt{8} + \sqrt{32} &= \sqrt{4 \cdot 2} + \sqrt{16 \cdot 2} \\ &= 2\sqrt{2} + 4\sqrt{2} \\ &= 6\sqrt{2} \\ &= \sqrt{72}\end{aligned}$$

2. **Jawab: C**

$$\begin{aligned}\frac{54}{3\sqrt{2} - 2\sqrt{3}} &= \frac{54}{3\sqrt{2} - 2\sqrt{3}} \cdot \frac{3\sqrt{2} + 2\sqrt{3}}{3\sqrt{2} + 2\sqrt{3}} \\ &= \frac{54(3\sqrt{2} + 2\sqrt{3})}{(3\sqrt{2})^2 - (2\sqrt{3})^2} \\ &= \frac{54(3\sqrt{2} + 2\sqrt{3})}{18 - 12} \\ &= \frac{54(3\sqrt{2} + 2\sqrt{3})}{6} \\ &= 27\sqrt{2} + 18\sqrt{3}\end{aligned}$$

3. **Jawab: D**

$$\begin{aligned}\left(\frac{(a^5)^{\frac{4}{10}} a^{-\frac{7}{2}} b^{-\frac{1}{4}}}{a^{-3} b^{-1}}\right)^{\frac{2}{3}} &= \left(a^{\frac{20}{10} + (-\frac{7}{2}) - (-3)} \cdot b^{-\frac{1}{4} - (-1)}\right)^{\frac{2}{3}} \\ &= \left(a^{2 - \frac{7}{2} + 3} b^{-\frac{1}{4} + 1}\right)^{\frac{2}{3}} \\ &= \left(a^{\frac{3}{2}} b^{\frac{3}{4}}\right)^{\frac{2}{3}} \\ &= \left(a^{\frac{3}{2}}\right)^{\frac{2}{3}} \cdot \left(b^{\frac{3}{4}}\right)^{\frac{2}{3}} \\ &= a \cdot b^{\frac{1}{2}} \\ &= a\sqrt{b}\end{aligned}$$

4. **Jawab: A**

$$\begin{aligned}\sqrt{27} \cdot \sqrt[3]{9} \cdot \sqrt{\frac{1}{243}} \cdot \sqrt[6]{\frac{1}{81}} \\ &= (3^3)^{\frac{1}{2}} \cdot (3^2)^{\frac{1}{3}} \cdot (3^{-5})^{\frac{1}{2}} \cdot (3^{-4})^{\frac{1}{6}} \\ &= 3^{\frac{3}{2}} \cdot 3^{\frac{2}{3}} \cdot 3^{-\frac{5}{2}} \cdot 3^{-\frac{4}{6}} \\ &= 3^{\frac{3}{2} + \frac{2}{3} - \frac{5}{2} - \frac{4}{6}} \\ &= 3^{\frac{9+4-15-4}{6}} \\ &= 3^{-1} \\ &= \frac{1}{3}\end{aligned}$$

5. Jawab: D

$$\sqrt[3]{\frac{64^{5-x}}{32}} = \sqrt{\frac{32}{8^x}}$$

$$\left(\frac{(2^6)^{5-x}}{2^5}\right)^{\frac{1}{3}} = \left(\frac{2^5}{2^{3x}}\right)^{\frac{1}{2}}$$

$$2^{\frac{30-6x-5}{3}} = 2^{\frac{5-3x}{2}}$$

$$\begin{array}{l} \frac{25-6x}{3} = \frac{5-3x}{2} \\ 50-12x = -9x+15 \\ -3x = -35 \\ x = 11\frac{2}{3} \end{array}$$

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