

LATIHAN SOAL DAN PEMBAHASAN

MATEMATIKA SMA KELAS X

BAB LOGARITMA

1. Nilai dari ${}^2\log 4 + {}^2\log 12 - {}^2\log 6 = \dots$
A. 8
B. 6
C. 5
D. 4
E. 3
2. Nilai dari ${}^2\log 48 + {}^5\log 50 - {}^2\log 3 - {}^5\log 2 = \dots$
A. -2
B. -6
C. $\frac{16}{25}$
D. 2
E. 6
3. Jika $\log 3 = 0,4771$ dan $\log 2 = 0,3010$, maka nilai dari $\log 75 = \dots$
A. 0,7781
B. 0,9209
C. 1,0791
D. 1,2552
E. 1,8751
4. Diketahui ${}^2\log 3 = 1,6$ dan ${}^2\log 5 = 2,3$; nilai dari ${}^2\log \frac{125}{9}$ adalah...
A. 10,1
B. 6,9
C. 5,4
D. 3,2
E. 3,7
5. Nilai dari ${}^2\log 8 - {}^{1/2}\log 0,25 + {}^3\log \frac{1}{27} + {}^2\log 1 = \dots$
A. -2
B. -1
C. 0
D. 1
E. 2
6. ${}^a\log \frac{1}{b} \cdot {}^b\log \frac{1}{c^2} \cdot {}^c\log \frac{1}{a^3} = \dots$
A. -6
B. 6
C. $\frac{b}{a^2c}$
D. $\frac{a^2c}{b}$
E. $-\frac{1}{6}$

7. Jika ${}^9\log 8 = 3m$, nilai ${}^4\log 3 = \dots$

A. $\frac{1}{4m}$

B. $\frac{3}{4m}$

C. $\frac{3}{2m}$

D. $\frac{m}{4}$

E. $\frac{4m}{3}$

8. Jika ${}^2\log \frac{1}{a} = \frac{3}{2}$ dan ${}^{16}\log b = 5$, maka ${}^a\log \frac{1}{b^3} = \dots$

A. 40

B. -40

C. $\frac{40}{3}$

D. $-\frac{40}{3}$

E. 20

9. Diketahui ${}^5\log 3 = p$, maka ${}^{15}\log 81 = \dots$

A. $\frac{3}{34}p$

B. $\frac{4p}{p+1}$

C. $\frac{p+1}{4p}$

D. $1 + 4p$

E. $4(1 + p)$

10. Jika ${}^5\log 3 = a$ dan ${}^3\log 4 = b$, maka ${}^{12}\log 75 = \dots$

A. $\frac{2+a}{a+b}$

B. $\frac{2+a}{a(1+b)}$

C. $\frac{2a}{a+b}$

D. $\frac{a+b}{a(1+b)}$

E. $\frac{a(1+b)}{a+b}$

11. ${}^3\log (3x+6) = {}^3\log 9$

12. ${}^2\log (x+9) = 5$

13. $\log (x^2 - 2x - 15) = \log (x + 3)$

14. ${}^2\log (5x-9) = {}^5\log (5x-9)$

Rangkuman Sifat-Sifat Logaritma yang Ada Dalam Pembahasan ini

1. ${}^a\log b = c \quad \rightarrow \quad b = a^c$

2. ${}^a\log(b.c) = {}^a\log b + {}^a\log c$

3. ${}^a\log \frac{b}{c} = {}^a\log b - {}^a\log c$

4. ${}^a\log b^n = n \cdot {}^a\log b$

5. ${}^a\log a = 1$

6. ${}^{a^n}\log b^m = {}^a\log b^{\frac{m}{n}}$

7. ${}^a\log b \cdot {}^b\log c = {}^a\log c$

8. ${}^a\log b = \frac{1}{{}^b\log a}$

9. ${}^a\log b = \frac{{}^c\log b}{{}^c\log a}$