



MATHS

BOOKS - INDEPENDENTLY PUBLISHED

MATHS (ENGLISH)

EXPONENTIAL AND LOGARITHMIC
FUNCTIONS

Examples

1. Simplify $x^{n-1} \cdot x^{2n} \cdot (x^{2-n})^2$



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2. Simplify $\frac{3^{n-2} \cdot 9^{2-n}}{3^{2-n}}$



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3. If $\log 23 = z$, find the value of $\log 2,300$ in terms of z .



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4. If $\ln 2=x$ and $\ln 3=y$ find the value of $\ln 18$ in terms of x and y .

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5. Solve for x : $\log_b(x + 5) = \log_b x + \log_b 5$.

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6. Evaluate $\log_{27} \sqrt{54} - \log_{27} \sqrt{6}$.

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7. The population of a certain city grows at 7% per year, and the current population is 100,000. What will the population of the city be in 10 years ?



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8. A bond pays interest at a rate of 3% compounded annually. How long it take an initial investment to double ?



Exercises

1. If $x^a \cdot (x^{a+1})^a \cdot (x^a)^{1-a} = x^k$, then $k =$

A. $2a + 1$

B. $a + a^2$

C. $3a$

D. $3a + 1$

Answer: C



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2. If $\log_8 3 = x \cdot \log_2 3$, then $x =$

A. $\frac{1}{3}$

B. 3

C. 4

D. $\log_4 3$

Answer: A



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3. If $\log_{10} m = \frac{1}{2}$, then $\log_{10} 10m^2 =$

A. 2

B. 2.5

C. 3

D. 10.25

Answer: A



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4. If $\log_b 5 = a$, $\log_b 2.5 = c$, and $5^x = 2.5$,
then $x =$

A. ac

B. $\frac{c}{a}$

C. $a + c$

D. $c - a$

Answer: B



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5. If $f(x) = \log_2 x$, then $f\left(\frac{2}{x}\right) + f(x) =$

A. $\log_2\left(\frac{2}{x}\right) + \log_2 x$

B. 1

C. $\log_2\left(\frac{2 + x^2}{x}\right)$

D. $\log_2\left(\frac{2}{x}\right) \cdot \log_2 x$

Answer: B



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6. If $\ln(xy) < 0$, which of the following must be true?

A. $xy < 0$

B. $xy < 1$

C. $xy > 1$

D. $xy > 0$

Answer: B



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7. If $\log_2 m = \sqrt{7}$ and $\log_7 n = \sqrt{2}$, $mn =$

A. 1

B. 2

C. 96

D. 98

Answer: D



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8. $\log_7 5 =$

A. 1.2

B. 1.1

C. 0.9

D. 0.8

Answer: D



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$$9.3\sqrt{2^5}\sqrt{4^9}\sqrt{8} =$$

A. 1.9

B. 2.0

C. 2.1

D. 2.3

Answer: C



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10. If \$300 is invested at 3%, compounded annually, how long (to the nearest year) will it take for the money to increase by 50% ?

A. 11

B. 12

C. 13

D. 14

Answer: D



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