

WARM UP WITH CALCULATOR

Solve for x:

1) $12 = 10^{x+5} - 7$ 2) $\log_3 (2x - 6) = 3$ 3) $9^{2x+1} = \left(\frac{1}{3}\right)^{3x}$

Handwritten notes:
 1) $19 = 10^{x+5}$
 $\log_{10} 19 = x+5$
 $x = -3.72$
 2) $x = 16.5$
 $3^3 = 2x - 6$
 $27 = 2x - 6$
 $33 = 2x$
 3) *NO CALC*

4) You purchased a new car for \$24,900. It is depreciating at a rate of 10.3% per year. What will be the estimated value of the car in 4 year?

$24900(1 - .103)^4$ 16120

Handwritten notes:
 $x = -\frac{2}{7}$
 $3^{2(2x+1)} = 3^{-(3x)}$
 $4x+2 = -3x$
 $7x = -2$
 $x = -\frac{2}{7}$

5) Condense: $5 \log_4 x + 3 \log_4 y - \log_4 z$

6) Expand: $\log \frac{x^5 y^{-2}}{2z}$

Handwritten note: $\log_4 \left(\frac{x^5 y^3}{z}\right)$

$5 \log x - (2 \log y + \log 2 + \log z) = 5 \log x - 2 \log y - \log 2 - \log z$

7) Evaluate: $\log_{\frac{1}{8}} 2$ $\log_5 250 - \log_5 2 = \log_5 \frac{250}{2}$

$x = -\frac{1}{3}$

$x = 3$

$\log_5 125 = x$
 $5^x = 5^3$

Mar 12-11:11 AM

HW 8.5 p. 465 Part II - ANSWERS

53. -1

54. 3

55. $\frac{1}{2}$

56. 3

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

58. -2

59. 3

60. $-\frac{1}{2}$

83. 2.3094

84. 10

85. 0.8505

86. 1.5

87. 7.4168

88. 200.8

89. 2.9615

90. 2.7944

91. 1

92. 500

93. 1.0451

94. $114.\bar{3}$

95. 1.3063

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96. 3.0417

1. 2. Graphs
3. $3 \log s - 5 \log r$
4. $2 \log_6 3 + 2 \log_6 x + 2 \log_6 y$
5. $\log_6 4 + \frac{1}{2} \log_6 x$

Mar 2-1:38 PM

8.6 Natural Logarithms

For the equation $\log 100 = x$, what is the implied base?

If the base of a log is e , we use the \ln button on the calculator so,

\log_e is written \ln

\ln is said to be "the natural log"

All properties of logs apply to the natural log.

Mar 11-1:17 PM

Write as a single ln.

$$\textcircled{2} \ln 12 - \ln 9 \quad \text{Pull} \rightarrow$$

$$\ln 144 - \ln 9$$

$$\ln\left(\frac{144}{9}\right) = \ln 16$$

$$\frac{1}{4} \ln 3 + \frac{1}{2} \ln x - 5 \ln x \quad \text{Pull} \rightarrow$$

$$\ln 3^{\frac{1}{4}} + \ln x^{\frac{1}{2}} - \ln x^5$$

$$\ln \frac{\sqrt[4]{3} \sqrt{x}}{x^5}$$

Mar 16-10:39 AM

Solve for x.

$\ln_e(3x-9) = 5$ Pull

$e^5 = 3x-9$

$148.41 = 3x-9$

+9

$\frac{157.41}{3} = \frac{3x}{3}$

$52.47 = x$

$\ln \frac{x+2}{3} = 4$ Pull

$e^4 = \frac{x+2}{3}$

$3(54.6 = \frac{x+2}{3})3$

$161.79 = x$

$3 + \ln(x+2)^2 = 8$ Pull

-3

$\ln(x+2)^2 = 5$

-2

$\sqrt{e^5} = \sqrt{(x+2)^2}$

$12.18 = x+2$

$10.18 = x$

$2 \ln(x+2) = 5$

$\ln(x+2) = \frac{5}{2}$

$e^{\frac{5}{2}} = x+2$

Mar 16-10:46 AM

To calculate continuously compounded interest use the formula below.
In the formula, *A* represents the amount in the account

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Amount

↓

A = Pe^{rt}

click below

Principal
(Initial Amount)

click below

rate of interest
as a decimal

click below

time in years

Feb 23-1:00 PM

You deposit \$2500 in an account that pays 5% ~~annual~~ interest compounded continuously. Find the balance after 5 years.

$$\begin{array}{l}
 A = ? \\
 P = 2500 \\
 r = .05 \\
 t = 5
 \end{array}
 \quad
 \begin{array}{l}
 A = 2500e^{.05 \cdot 5} \\
 \$ 3210.06
 \end{array}$$

Solve for x.
Get e^x alone, then

$$4e^{3x} + 1.2 = 14 \quad \text{Pull} \rightarrow$$

$$\frac{4e^{3x}}{4} = \frac{12.8}{4}$$

$$e^{3x} = 3.2$$

$$\ln_e 3.2 = 3x$$

$$\frac{1.16}{3} = \frac{3x}{3}$$

$$.39 = x$$

$$e^{2x} - 8 = 7 \quad \text{Pull} \rightarrow$$

$$e^{2x} = 15$$

$$\ln 15 = 2x$$

$$x = 1.35$$

GO COUGARS!



EVERGREEN
COUGARS

→ HOMEWORK 8.6 - Part I

p. 472 #1-9 odd, 15 - 37 odd,
(skip 29)

Aug 29-11:17 AM

Attachments

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