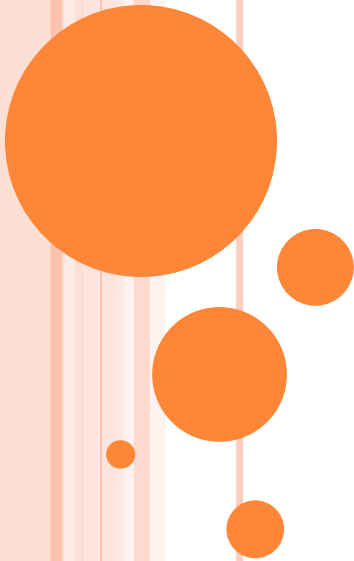


HINTS FOR PREVIOUS ASSIGNMENT #1-23



Hints to get started

#21-22 → Same directions as above, although it is ok to use a calculator only on the very last step when you are computing fractions and decimals together.

$$\begin{aligned}
 & 21. \log 0.0048 \quad \log(48)(10^{-4}) \quad 22. \log 0.06 = \log 6 \cdot 10^{-2} \\
 & \text{or } \log \frac{48}{10000} \quad \text{or } \log 48 + \log 10^{-4} \\
 & = \log 48 - \log 10^4 \quad = \\
 & = \log 6 + \log 10^{-2} \\
 & = \log 6 + \log 10^{-2} \\
 & =
 \end{aligned}$$

23. Solve for x. Clearly show all steps and use the proper order of operations when applying properties of logarithms. NO CALCULATOR.

$$\ln \left(\frac{4e^{5x}}{25} \right) = 7x$$

$$\ln(4)e^{5x} - \ln 25 = 7x$$

$$\ln 4 + \ln e^{5x} - \ln 25 = 7x$$

$$\ln 4 + 5x \ln e - \ln 25 = 7x$$

-5x

continued on next slide ↘

CHECK ANSWERS

-2.3188

-1.2219

0.0792

2.602

3.5562

4.2552

5.602

5.301

$\ln \frac{2}{5}$

#23 continued (from previous assignment)

$$\ln 4 - \ln 25 = 7x - 5x$$

$$\ln \frac{4}{25} = 2x$$

$$\frac{1}{2}(\ln \frac{4}{25}) = \frac{1}{2}(2x)$$

$$\ln \left(\frac{4}{25}\right)^{\frac{1}{2}} = x$$

$$\ln \frac{\sqrt{4}}{\sqrt{25}} = x$$

$$\ln \frac{2}{5} = x$$

exact value



TODAY'S ASSIGNMENT: #1-48

SHOW WORK!!!

ALL PROBLEMS MARKED WITH *
ON THE FRONT PAGE SHOULD
HAVE SOME WORK.

BACK PAGE: SHOW WORK FOR ALL!

NO CALCULATOR
EXCEPT #26,27,28



4.

$$\begin{aligned}\log \frac{\sqrt[4]{a^2}}{\sqrt[4]{b}} &= \log \left(\frac{a^2}{b} \right)^{\frac{1}{4}} \\ &= \frac{1}{4} \log \frac{a^2}{b} \\ &= \frac{1}{4} (2 \log a - \log b)\end{aligned}$$

show steps!

demonstrate your thinking process!



21. If $\log 2 = a$ and $\log 3 = b$,
express $\log 6$ in terms of a and b

$$\begin{aligned}\log 6 &= \log(2)(3) \\ &= \log 2 + \log 3 \\ &= a + b\end{aligned}$$

Show
work!



#26

and

#27

$$A(t) = P\left(1 + \frac{r}{n}\right)^{nt}$$

Handwritten annotations: 7000 (above P), 5,300 (above P), 9% (above r), 4 (below n), and arrows pointing from these values to their respective parts in the formula.

$$P(k) = 100(.508)^k$$

↑ Function notation similar to f(x), ↑ NOT multiplication

$$\frac{7000}{5300} = \frac{5300}{5300} \left(1 + \frac{.09}{4}\right)^{4t}$$

Handwritten annotations: Red arrow from 'use calculator to simplify' points to the fraction $1 + \frac{.09}{4}$. The fraction $1 + \frac{.09}{4}$ is highlighted in yellow.

use calculator to simplify

$$\ln \frac{70}{53} = \ln(1.0225)^{4t}$$

Handwritten annotations: Red arrow from the previous equation points to this one. The term $4t$ is circled in red.

← apply logarithm to both sides

$$\frac{\ln \frac{70}{53}}{\ln 1.0225} = 4t \frac{\ln 1.0225}{\ln 1.0225}$$

Handwritten annotations: The fraction $\frac{\ln 1.0225}{\ln 1.0225}$ is crossed out with a large red X.

get 4t by itself

→ continued on next slide



#26 continued

$$\frac{\ln \frac{70}{53}}{\ln 10225} = 4t$$

divide in calculator

$$\ln(70-53) - \ln(10225)$$

close parentheses

$$\frac{12503178.}{4} = \frac{4t}{4}$$

Carry all values to next step in calculator

$$31 \approx t$$

years

