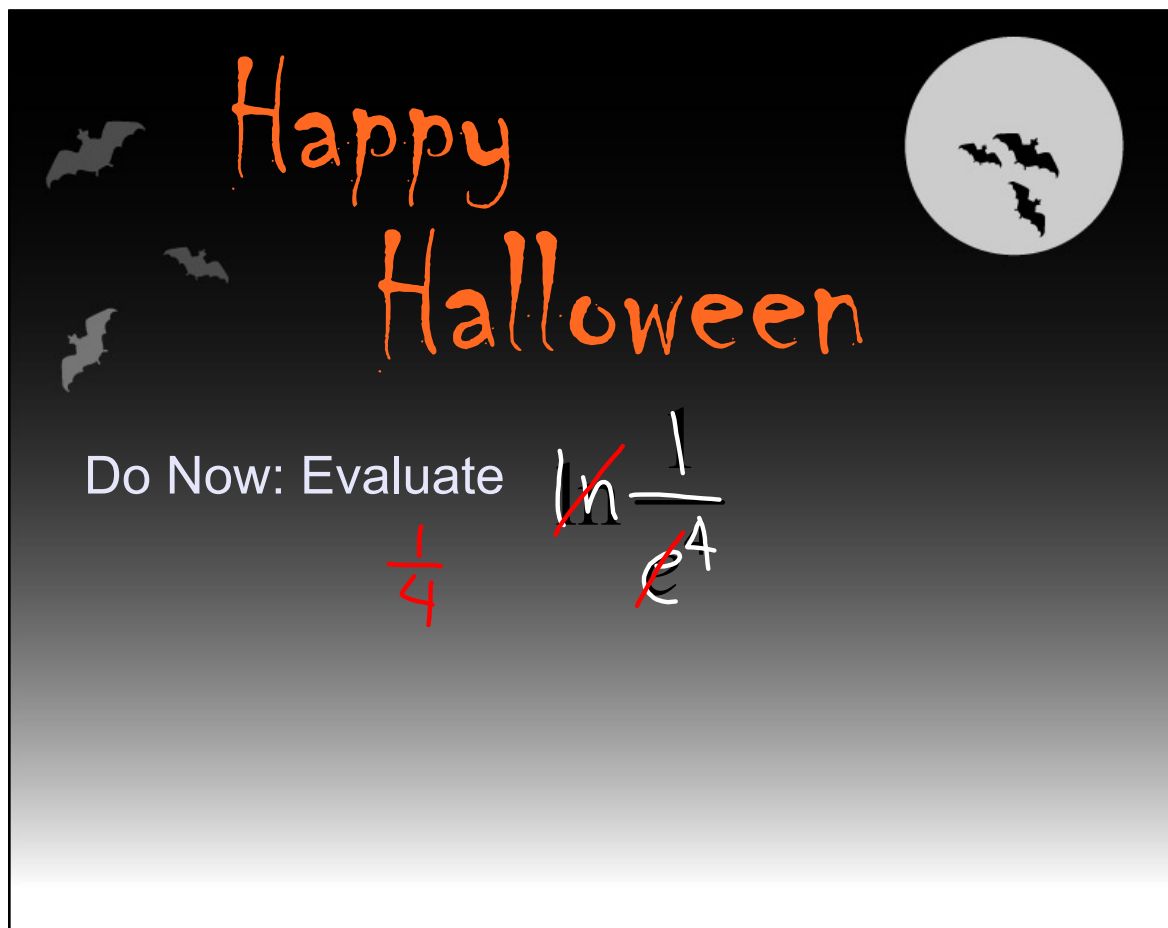


Happy
Halloween

Do Now: Evaluate $\ln \frac{1}{e^4}$

$\frac{1}{4}$



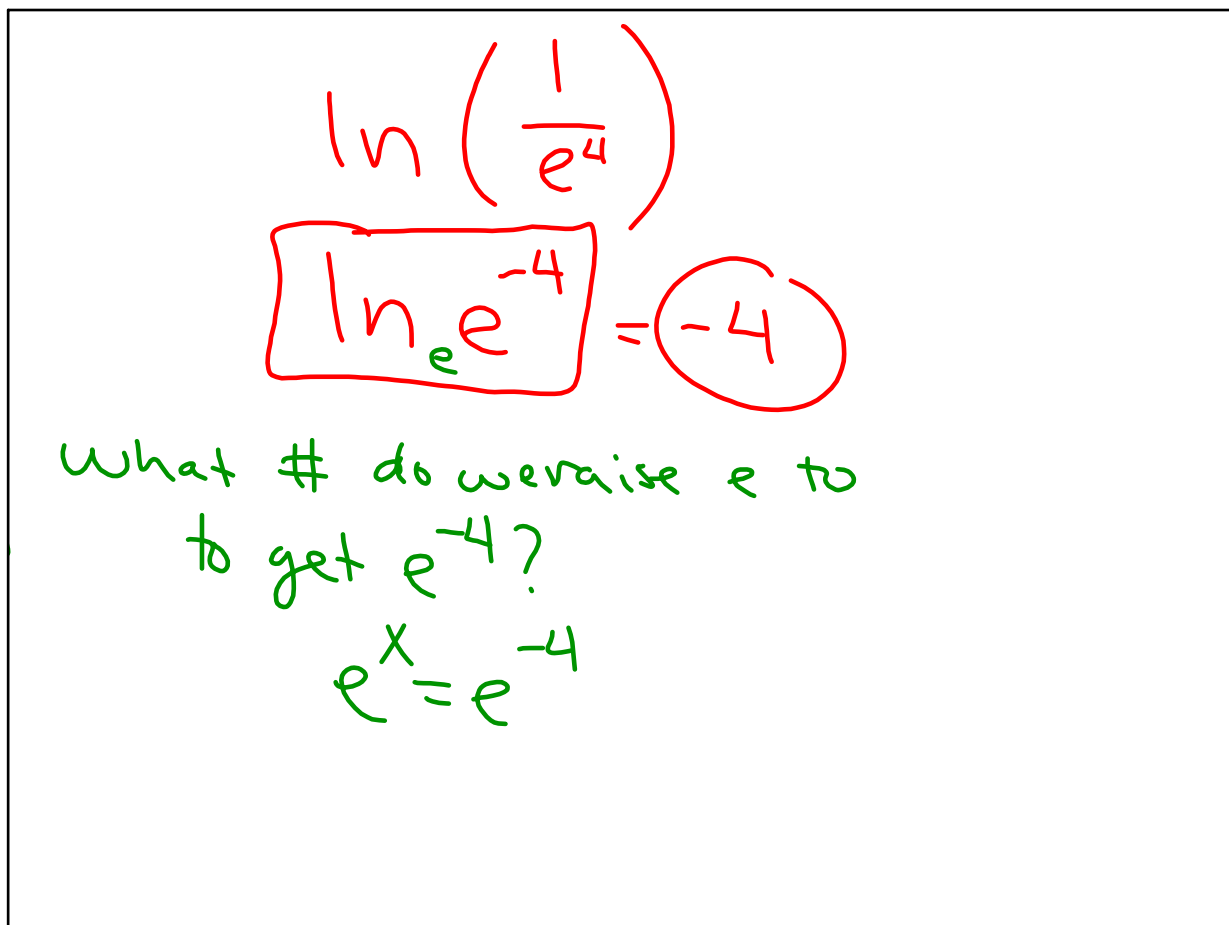
Oct 26-1:25 PM

$\ln\left(\frac{1}{e^4}\right)$

$\ln e^{-4} = -4$

What # do we raise e to
to get e^{-4} ?

$e^x = e^{-4}$




Oct 31-2:10 PM

$$\log_{10} 100 = 2$$
$$\log_{10} 10^2 = 2$$

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Oct 26-1:18 PM




What is a log?
 A number (which is an exponent) that you raise the base to in order to get

$3 = \log_3 27$ ← the argument!

$\sqrt{16} = 4$

Oct 26-1:19 PM



Chap 3


Change bases $b^x = b^y$ Rewrite in exp form
 $x = y$

1. $3^x = 81$
 $3^x = 3^4$
 $x = 4$

2. $\log_7 x = 3$
 $7^3 = x$
 $343 = x$

$\left(\frac{1}{9}\right)^{3x} = 27^{x+4}$
 $(3^{-2})^{3x} = (3^3)^{x+4}$
 $3^{-6x} = 3^{3x+12}$
 $-6x = 3x + 12$
 $9x = -12$
 $x = -\frac{4}{3}$

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Simplify and rewrite in exponential form

3. $2\log_5 x - \log_5 4 = 12$

$\log_5 x^2 - \log_5 4 = 12$

$\log_5 \frac{x^2}{4} = 12$

$5^{12} = \frac{x^2}{4}$

$4 \cdot 5^{12} = \frac{x^2}{4} \cdot 4$


$\sqrt{x^2} = \sqrt{4 \cdot 5^{12}}$

$x = 31,250$

~~$\log_5 4$~~

$10^x = -4$

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Isolate the log, rewrite and use calculator.

5. $-4\ln 2x = -16$

4. $\log_7 3 = x - 4$

* $x = 4.564575$

~~$7^{x-4} = 3$~~

6. $5e^{-2x} + 2 = 17$

$x = -.549$

$5e^{-2x} = 15$

$e^{-2x} = 3$

$\ln e^{-2x} = \ln 3$

$\ln 3 = -2x$

$-2x = \ln 3$

Oct 26-1:19 PM


27.299

$$-4 \ln 2x = -16$$

$$\ln 2x = 4$$

$$e^4 = 2x$$

Oct 31-2:37 PM



Solving equations review:

Accuracy!!! Round answers correctly!!

There are four rounds:

- Easy as Pumpkin Pi (NO Calculator)
- Don't be a Scared Cat
- Spooky
- Haunting

- After each round find the **SUM** of all the problems on the sheet and come see me.
 - If you are correct then you get the next round.
- If you are wrong you need to correct it and your group is out of contention of winning.
- Finish all 4 rounds without any errors = **WINNER!!!!**

Oct 26-1:13 PM

Exit Slip:

$$\log_3 4 - \log_3 x = 34$$

Homework: Correct quiz errors!

Oct 31-8:05 AM