

Happy Tuesday, January 24th!

Do Now:

1) Quiz Corrections and Homework (Review) on desk.

2) Solve for x  $3e^{2x} = 15$

Jan 24-7:48 AM

Reminders:

- Test over last two quizzes tomorrow!

Logarithms:

- Evaluating  $\log_3 27 = 3$

- Rewriting, expanding, condensing

- Solving

Jan 23-9:53 AM

Evaluate

$\log_3 81$  (4)

$\log_3 -81$  \* No negative  
No Solution

~~$3^4 = 4\sqrt{3}$~~   
 ~~$3^{-4} = \frac{1}{3^4} = \frac{1}{81}$~~

\*LWP  
Rewrite in log form

$5^x = 127$   
 $\log_5 127 = x$

Rewrite in exp

$\log_m(x-2) = 5$   
 $m^5 = x-2$

Jan 24-11:22 AM

Expand

(5)  $\log \sqrt{\frac{2rst}{5w}}$

$\log \left( \frac{2rst}{5w} \right)^{\frac{1}{2}}$

$\frac{1}{2} \log \left( \frac{2rst}{5w} \right)$

$\frac{1}{2} (\log 2rst - \log 5w)$

\*  $\frac{1}{2} (\log 2 + \log r + \log s + \log t - \log 5 - \log w)$

Jan 24-11:34 AM

④  
Condense

$$5 \log_7 x - 2 \log_7 x$$

$$\log_7 x^5 - \log_7 x^2$$

$\log_7 x^3$

$\log_7 \frac{x^5}{x^2}$

Jan 24-11:40 AM

③

$$\log_2 4 + \log_2 2 - \log_2 8$$

$$\log_2 8 - \log_2 8$$

$$\log_2 \frac{8}{8}$$

$\log_2 1$

Jan 24-11:42 AM

⑧

Condense  $\frac{1}{2} \log r + \frac{1}{3} \log s - \frac{1}{4} \log t$

$$\log r^{\frac{1}{2}} + \log s^{\frac{1}{3}} - \log t^{\frac{1}{4}}$$

$$\log r^{\frac{1}{2}} s^{\frac{1}{3}} - \log t^{\frac{1}{4}}$$

$$\log \frac{r^{\frac{1}{2}} s^{\frac{1}{3}}}{t^{\frac{1}{4}}}$$

Jan 24-11:44 AM

$$\log(x+2) + \log(x) = \log(8)$$

$$\log(x)(x+2) = \log 8$$

$$(x+4)(x-2) = 0 \quad \log(x^2+2x) = \log 8$$

$$\cancel{x = -4}$$

$$x = 2$$

$$x^2 + 2x = 8$$

$$x^2 + 2x - 8 = 0$$

Jan 24-11:49 AM

⑧

$$\frac{2 \cdot \ln 2x^2}{2} = \frac{1}{2}$$

$$\ln 2x^2 = \frac{1}{2}$$

$$e^{\frac{1}{2}} = 2x^2$$

$$1.6 = 2x^2$$

$$.8 = x^2$$

$$\sqrt{.8} = x$$

Jan 24-11:54 AM

$$3^{-2x+2} = 81$$

$$\log_3 81 = -2x + 2$$

$$4 = -2x + 2$$

Jan 24-11:57 AM

$$\ln_e 4$$

$$e = 2.718 \dots$$

$$\pi = 3.14 \dots$$

$$\log_e 4$$

$$\log_{10} 4$$

Jan 24-11:31 AM

Evaluate

$$\log_3 81$$

4

Rewrite in exp form

$$b = \log y$$

$$\log y = b$$

$$10^b = y$$

Rewrite in log form

$$c^4 = a$$

$$\log_c a = 4$$

$$\ln_e 3x = 4$$

$$e^4 = 3x$$

Jan 24-7:53 AM

$$\textcircled{8} \quad \frac{1}{2} \log r + \frac{1}{3} \log s - \frac{1}{4} \log t$$

Condense

$$\log r^{\frac{1}{2}} + \log s^{\frac{1}{3}} - \log t^{\frac{1}{4}}$$

$$\log r^{\frac{1}{2}} s^{\frac{1}{3}} - \log t^{\frac{1}{4}}$$

$$\log \frac{r^{\frac{1}{2}} s^{\frac{1}{3}}}{t^{\frac{1}{4}}}$$

Jan 24-10:44 AM

$$\textcircled{5} \quad \log \sqrt{\frac{2rst}{5w}}$$

Expand

$$\log \left( \frac{2rst}{5w} \right)^{\frac{1}{2}}$$

$$\frac{1}{2} \log \left( \frac{2rst}{5w} \right)$$

$$\frac{1}{2} \left[ \log 2rst - \log 5w \right]$$

$$\frac{1}{2} \left[ \log 2 + \log r + \log s + \log t - \log 5 - \log w \right]$$



Jan 24-10:49 AM

⑦

$$\log(x+2) + \log(x) = \log(8) \quad \text{Solve } x = \underline{\quad}$$

$$\log(x)(x+2) = \log(8)$$

$$\log(x^2 + 2x) = \log(8)$$

$$(x+4)(x-2) = 0$$

$$\cancel{x = -4}$$

$$x = 2$$

$$x^2 + 2x = 8$$

$$x^2 + 2x - 8 = 0$$

Jan 24-10:55 AM

 $\sqrt{x}$ 

$$\frac{1}{10^2} = \frac{1}{100} = \sqrt[2]{\frac{1}{100}} = \log^{-100}$$

$$10 = -100$$

$$100 \neq -100$$

\* No negative arguments

$$\log_2(-4) \quad \text{No Solution}$$

Jan 24-11:00 AM



③

Quiz

$$\log_2(x) + \log_2(4x) + 2 = 2$$

-2      -2

$$\log_2(x) + \log_2(4x) = 0$$

Condense

$$\log_2(4x^2) = 0$$

$$2^0 = 4x^2$$

$$\frac{1}{4} = \frac{4x^2}{4}$$

$$25 = x^2$$

$$\sqrt{25} = x$$

$$x = 0.5$$

Jan 24-11:03 AM