Ch. 6 – BOARD PROBLEMS

1) Graph $f(x) = -2\cos 2\left(x - \frac{\pi}{4}\right) + 1$

2) $\cos \frac{5\pi}{4} =$ _____

3) How many hours exist for $0 = \sin(2x)$ for all x in $[0, 10\pi]$?

Ch. 6 – EXPONENTIAL AND LOGARITHMIC FUNCTIONS

(flip x and y)

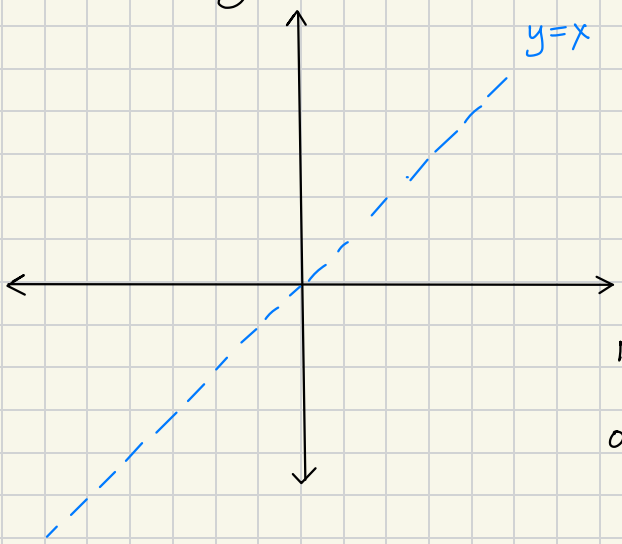
GRAPH $y = e^x$

$y = e^x$

X	Y

$y = \ln x$

X	Y



If $y = a^x$ exponential form

opposite

$\log_a x = y$

Logarithm form

REMEMBER THESE PROPERTIES.

1) $LN(1) =$ _____

2) $LN(e) =$ _____

3) $\ln(e^x) =$ _____

4) $e^{\ln(x)} =$ _____

5) $\ln(xy) =$ _____

6) $\ln\left(\frac{x}{y}\right) =$ _____

7) $\ln(x^9) =$ _____

* Natural logs of a negative number is _____.

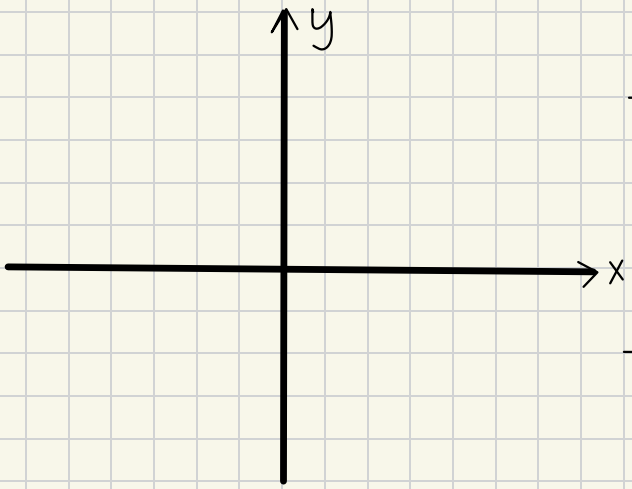
SOLVE FOR X.

EX. 1 $e^{2x} = 1$

EX. 2 $\ln(x+5) = e^0$

EX. 3 $e^{2x} - 4e^x - 3 = 0$ LET $u = e^x$

EX. 4 DRAW THE GRAPH OF $y = 2e^x$ AND ITS INVERSE.



$y = 2e^x$

x	y

x	y

FIND $F^{-1}(x)$ by SWITCHING VARIABLES

$x = 2e^y$

SOLVE FOR y.

LESSON PRACTICE

Answer the question.

1. Draw the graph of $y = \frac{e^x}{3}$. Find the inverse function. Graph it.

2. Draw the graph of $y = 2e^x$. Find the inverse function. Graph it.

3. Solve for x.

   A. $e^{2x+1} = 1$

   B. $2e^{3x} = e^0$

   C. $0 = \ln(2x + 5)$

D. $\ln(x) + \ln(5) = 6$

4. Solve for x. (**Hint:** Substitute and factor.)

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

B. $2e^{2x} + 7e^{x} = 4$