

Calculus I. F14 pre-Quiz. Name _____ Time _____

Do your best on each problem. In the notes section let me know which is the case:

a) you have never seen this kind of problem before, b) you have but need review, or c) it is quite familiar.

1. Solve for x , given that $x^4 - x = 0$.

Answer: two answers: $x = 0$ or $x = 1$. Factor the original to see it.

2. Solve for x , given that $3^{x-4} = 1$.

Answer: $x = 4$. Use \log_3 , or that $3^0 = 1$.

3. Solve for x , given that $\sin(x) = -1$, and $0 \leq x \leq 2\pi$.

Answer: $x = \frac{3\pi}{2}$. Recall the unit circle! We'll review it week 5.

4. How many solutions (values of x) has this equation: $\ln x = \frac{1}{x}$?

Answer: One solution. Graph both curves to see they only cross once. (We'll graph $\ln x$ tomorrow.)

5. What is the slope of the curve $y = 5x^3$ at $x = 2$?

Answer: slope $m = 60$. Put 2 into the derivative $y' = 15x^2$. We'll do this in week 5.

6. How much area is between the curve $y = \frac{1}{x}$, the x -axis, and the lines $x = 1$ and $x = 2$?

Answer: area = $\ln 2$. Integrate! We'll do this in week 13.