Worksheet 3: Even More PreCalc!

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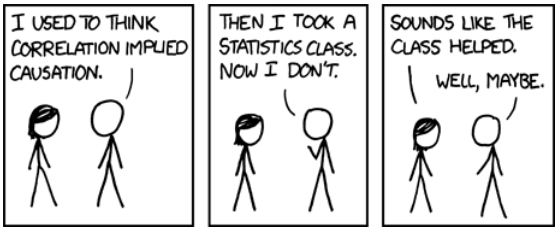

www.XKCD.com

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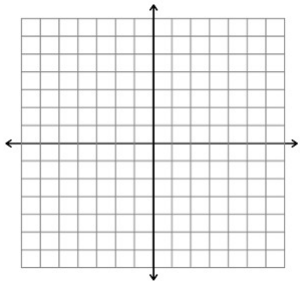
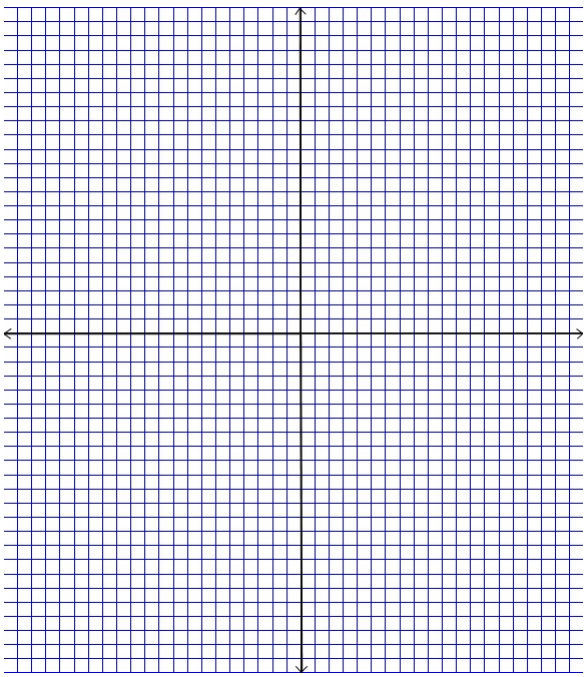
1. What is the domain of $ln(x)$? What is $ln(1)$?

2. Is $f(x) = x^2 + 4x + 4$ injective? Is it one-to-one?

3. Find the exponential function $f(x) = Ca^x$ matching the graph below.

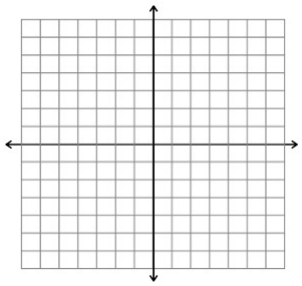


4. A function $f(x)$ is graphed below. Draw the graphs of $f(\frac{1}{2}x - 4)$ and $2(f(x) + 1)$.

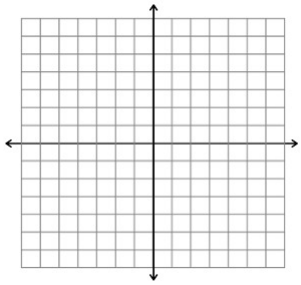


5. Are the following functions one-to-one? If so and represented with a graph, draw their inverse.

(a)



(b)



(c)

Sarah	Apple
Mike	Video Games
Angel	Guitar
Aun	Drums
Sophie	Guitar

6. Let $f(x) = ln(x + 3)$. Find $f^{-1}(x)$.

7. Simplify: $ln(e^{2sin(x)}e^{2cos(x)}) + \frac{9^x}{3^{2x}} - \left(\frac{cot(x)sin(x)}{cos(x)}\right)^2$

8. What is the domain of the function $f(x) = ln(x^2 - 6x + 9)$?

9. Find the exact value of $log_5(25) + log_{10}(1000) + ln(e^7)$.

10. Find the exact value of $log_3(15) + log_3(12) - log_3(20)$.

11. Find the exact value of $log_{42}(-42)$.