

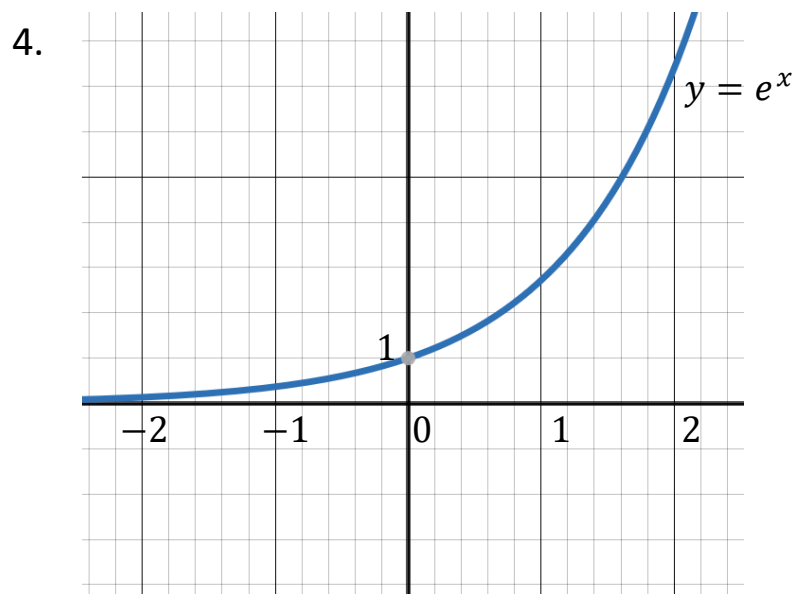
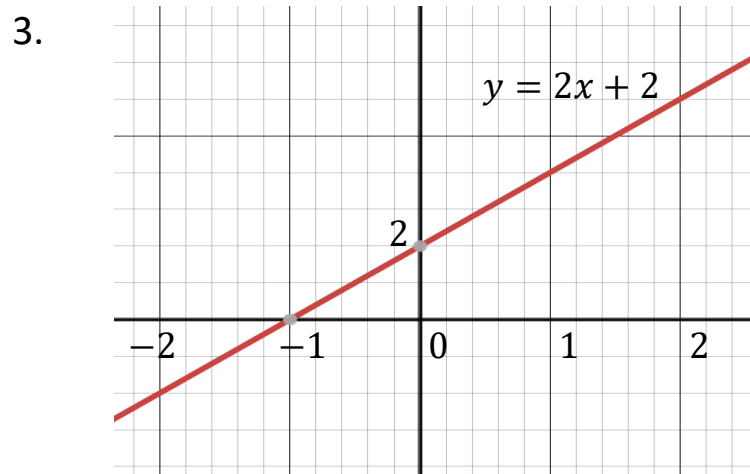
Inverse Functions- HW Problems

Show that $f(x)$ and $g(x)$ are inverse functions.

1. $f(x) = 2 - 3x$, $g(x) = \frac{2-x}{3}$

2. $f(x) = \sqrt{x-9}$, $g(x) = x^2 + 9$, $x \geq 9$.

Sketch a rough graph of $f^{-1}(x)$ given the graph of $f(x)$ below.



Determine whether the following functions are 1-1.

5. $f(x) = 3x + 1$

6. $f(x) = x^2 - 2x$ (Hint: sketch a graph)

7. $f(x) = \sin(x)$

8. $f(x) = \sqrt{1 + x^2} - 2$

9. $f(x) = \sqrt{1 + x^2} - 2, x \geq 0$

Find a formula for the inverse function

10. $y = \frac{1+2x}{1-4x}; x \neq \frac{1}{4}$

11. $y = \sqrt{1 + 2x} - 2; x \geq -\frac{1}{2}$

12. $g(x) = 4 - 2x^3$

13. $f(x) = \frac{1-x^2}{1+x^2}; x \geq 0$

Find $(f^{-1})'(a)$.

14. $f(x) = 2x^3 + x + 2; a = 2.$

15. $f(x) = x^3 + 4x - \sin(2x) + \cos(x); a = 1.$