

Find the inverse algebraically

1. $f(x) = -2x + 1$

$f^{-1}(x) = -\frac{1}{2}x + \frac{1}{2}$

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

$f^{-1}(x) = x^2 - 1$

3. $f(x) = 4^x$

$f^{-1}(x) = \log_4 x$

4. $y = \frac{2x+1}{3}$

$y^{-1} = \frac{3}{2}x - \frac{1}{2}$

5. $y = \log_3(x-1)$

$y^{-1} = 3^x + 1$

6. $y = 3^{x+2}$

$y^{-1} = \log_3(x) - 2$

7. $f(x) = \log_2(x+2)$

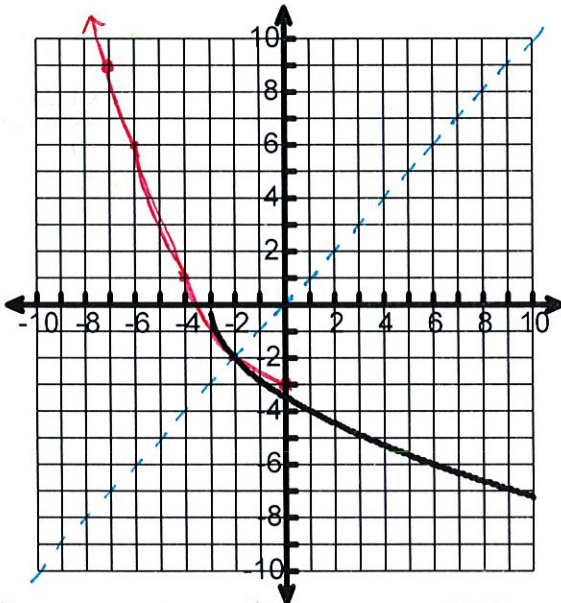
$f^{-1}(x) = 2^x - 2$

8. $y = \sqrt[3]{x+3}$

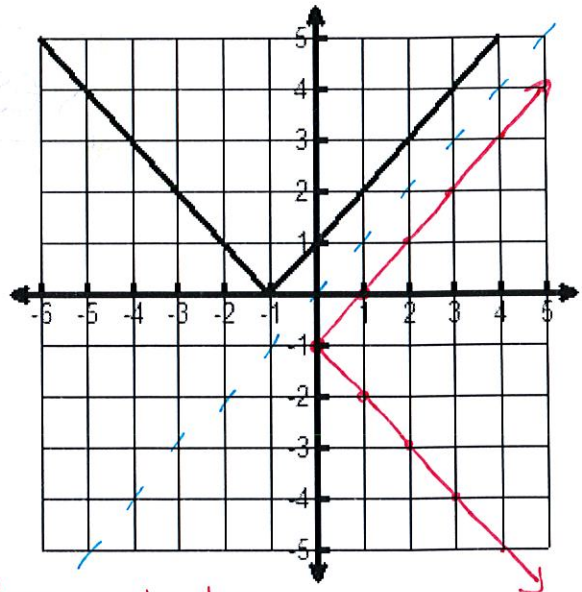
$y^{-1} = x^3 - 3$

Find the inverse graphically

9.



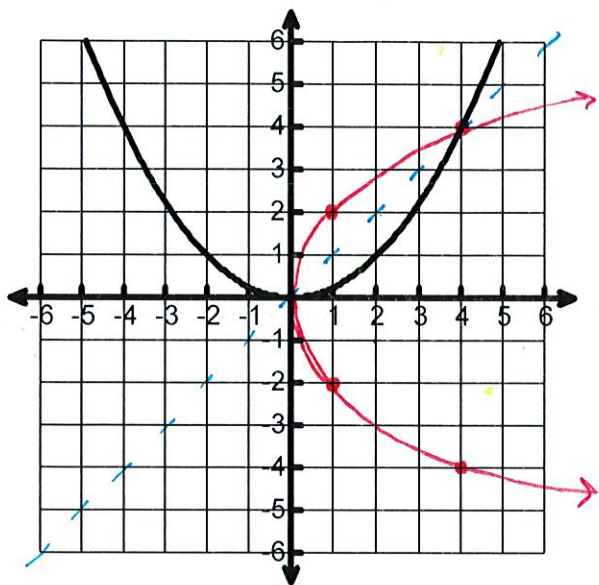
10.



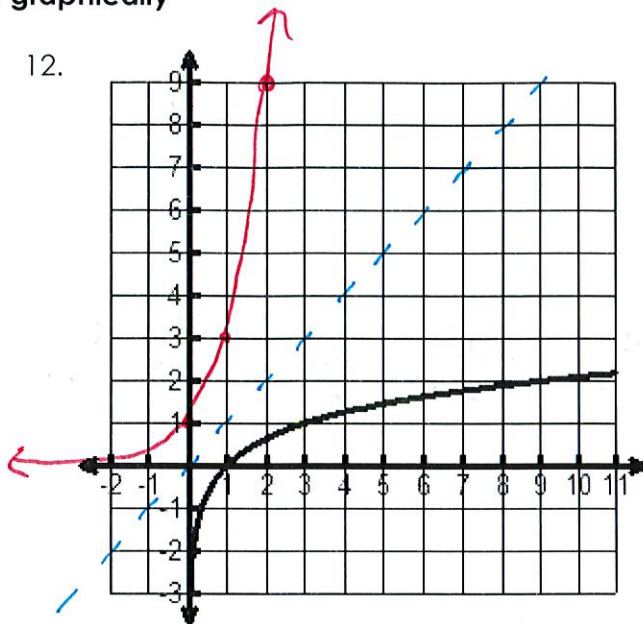
* Show original + inverse points for both! *

Find the inverse graphically

11.



12.



Using composite functions – verify that the two functions are inverses of each other (SHOW YOUR WORK)

13. $f(x) = 2x - 3$ & $g(x) = \frac{x+3}{2}$

yes!

14. $f(x) = 3^x$ & $g(x) = \log_3 x$

yes!

15. $f(x) = -3x$ & $g(x) = -\frac{3}{x}$

no!

16. $f(x) = 5^{x+1}$ & $g(x) = \log_5(x+1)$

no!