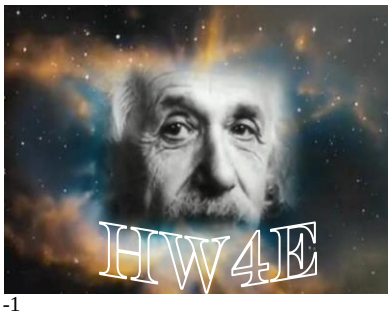
Suppose a function f has an inverse. If $f(2) = 6$, $f(3) = 7$ and $f(-1) = 3$, find:



1) $f^{-1}(6)$ 2) $f^{-1}(f(3))$ 3) $f(f^{-1}(7))$ 4) $f^{-1}(f^{-1}(7))$

5) Let $h(x) = 4x - 3$

a) Sketch the graphs of h and h^{-1}

b) Find a rule for h^{-1}

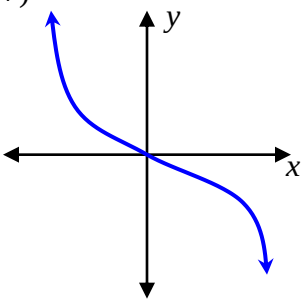
6) Let $k(x) = \frac{1}{2}x - 4$

a) Sketch the graphs of k and k^{-1}

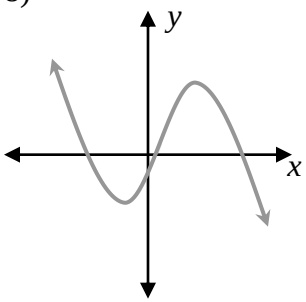
b) Find a rule for k^{-1}

State whether the graphs of the following functions have an inverse. (yes or no)

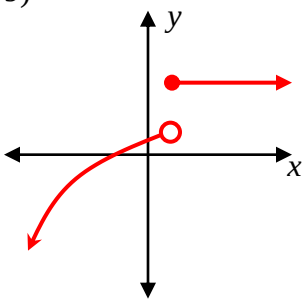
7)



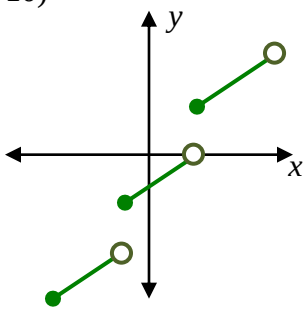
8)



9)



10)



State whether the function f has an inverse. If f^{-1} exists, find a rule for f^{-1} and show that $f(f^{-1}(x)) = f^{-1}(f(x)) = x$.

11) $f(x) = 3x - 5$ 12) $f(x) = |x| + 2$ 13) $f(x) = \sqrt[4]{x}$ 14) $f(x) = \frac{1}{x}$

15) $f(x) = \frac{1}{x^2}$ 16) $f(x) = \sqrt{5 - x}$ 17) $f(x) = \sqrt{4 - x^2}$ 18) $f(x) = \sqrt[3]{1 + x^3}$

Sketch the graph of g and g^{-1} on the same set of axes. Then find a rule for $g^{-1}(x)$.

19) $g(x) = x^2 + 2, x \geq 0$ 20) $g(x) = (x - 4)^2 - 1, x \geq 4$ 21) $g(x) = |x + 3|, x \leq -3$

1) 2
2) 3
3) 7
4) -1
5b) $h^{-1} = (x + 3)/4$
6b) $k^{-1} = 2x + 8$
7) yes
8) no
9) no
10) yes
11) yes
$f^{-1}(x) = (x + 5)/3$
12) no
13) yes
$f^{-1}(x) = x^4, x \geq 0$
14) yes
$f^{-1}(x) = 1/x, x \neq 0$
15) no
16) yes
$f^{-1}(x) = 5 - x^2, x \geq 0$
17) no
18) yes
$f^{-1}(x) = \sqrt[3]{x^3 - 1}$
19) $g^{-1}(x) = \sqrt{x - 2}, x \geq 2$
20) $g^{-1}(x) = 4 + \sqrt{x + 1}, x \geq -1$
21) $x = |y + 3|, y \leq -3$ or $x \geq 0$
See Mr. Paull for all graphs