Advanced Algebra & Trigonometry
Algebraic Functions: Function Inverses - Homework

Determine if the following are inverses of each other by finding $(f \circ g)(x)$ *and* $(g \circ f)(x)$.

1) $f(x) = 5x - 6$
$g(x) = \dfrac{x+6}{5}$

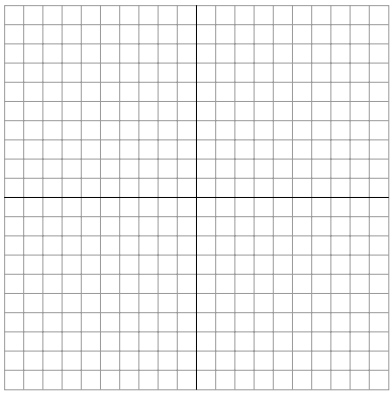
2) $f(x) = x + 5$
$g(x) = 5 - x$

3) $f(x) = \dfrac{1}{3}x + 2$
$g(x) = 3(x-2)$

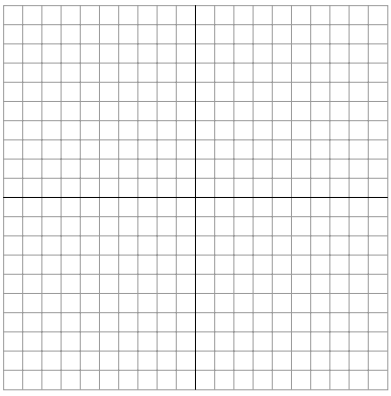
4) $f(x) = x - 2$
$g(x) = x + 2$

For each function, find the inverse. Graph both on the same coordinate plane. Draw the line of symmetry, y = x. Then state whether the inverse is a function.

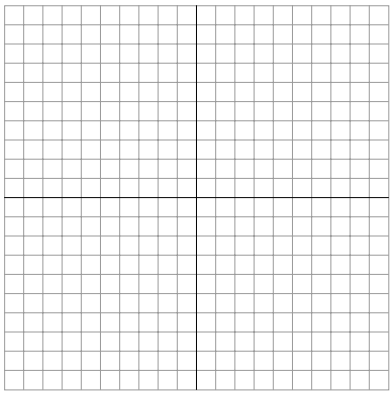
5) $f(x) = 4x + 4$



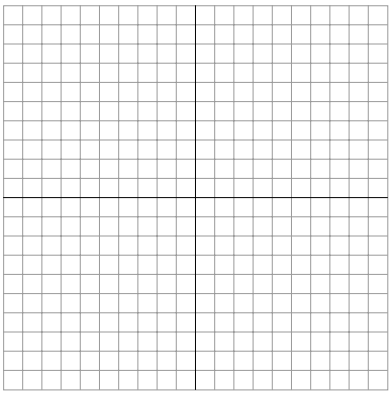
6) $f(x) = 3x - 1$



7) $f(x) = x^3 - 4$



8) $f(x) = \sqrt[3]{3x}$



** These last two problems have domain issues that you will need to make adjustments for. Find the inverses algebraically, but when you graph the original function and the inverse on the same plane, figure out what correction you need to make to the inverse!*

9) $f(x) = x^2 + 1$

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