Functions pass the Vertical Line Test.
For every $x$ there is on and only one $y$.

One-to-one functions pass the Horizontal Line Test.
For every $y$ there is one and only one $x$.

Decide if the following function is one to one.
(Pull up Desmos.com graphs)

The inverse of a one-to-one function is a function.
To find the inverse, switch the $x$ and $y$ and solve for $y$.

**Key item to take away from this lesson:**
The domain of $f(x)$ is the range of its inverse, $f^{-1}(x)$
The range of $f(x)$ is the domain of its inverse, $f^{-1}(x)$
Find the inverse function \( f^{-1}(x) \) and its domain and range.

\[ f(x) = 4x + 8 \]

Domain: 

Range:
Find the inverse function \( f^{-1}(x) \) and its domain and range.

\[
f(x) = \frac{12}{x} + 8
\]

Domain: 

Range:
Find the inverse function $f^{-1}(x)$ and its domain and range.

$$f(x) = 4x^2 + 5, \quad x \geq 0$$

Domain:  
Range:
Find the inverse function $h^{-1}(t)$ and its domain and range.

$$h(t) = (t-10)^2, \ t \geq 10$$

Domain: 

Range:
Find the inverse function $f^{-1}(x)$ and its domain and range.

$$f(x) = \frac{x+16}{x+9}$$

Domain: ____________  Range: ____________