Inverse Functions

Inverse functions interchange the domain and range; interchange the x's and y's.

Algorithm for find inverse functions.

1. **Rewrite f(x) as y.**
2. **Interchange the x's and y's**
3. **Solve for y**
4. **Rewrite y using f⁻¹(x)**

Example   Find the inverse of f(x) if $f(x) = 3x + 5$

     1. $y = 3x + 5$
     2. $x = 3y + 5$
     3. $x - 5 = 3y$

$$\frac{x-5}{3} = y \quad \Longrightarrow \quad \frac{x-5}{3} = f^{-1}(x)$$

Find the inverse of the following functions.

1. $f(x) = 2x - 8$ 2. $g(x) = 3x + 6$

3. $h(x) = -3x + 12$ 4. $t(x) = 5x - 10$

5. $p(x) = x$ 6. $f(x) = x^3$

7. $t(x) = x/3 + 4$ 8. $h(x) = \left(\frac{2}{5}\right)x + 10$