Inverse Functions

A function f has an inverse only if the function f is one-to-one. (It passes the vertical and horizontal line tests.)
The inverse function is denoted as f^{-1}.

Example:

Find the inverse of $f(x) = 2x + 8$.

1. Replace f(x) with y. $y = 2x + 8$
2. Interchange x and y. $x = 2y + 8$
3. Solve for y. $x - 8 = 2y$

$$\frac{x}{2} - 4 = y$$

$$\mathbf{f^{-1}(x) = \frac{x}{2} - 4}$$

Find the inverse of the following functions.

1. $f(x) = 4x - 8$

2. $f(x) = 3x + 6$

3. $f(x) = \frac{x}{2} - 1$

4. $f(x) = (\frac{2}{3})x + 4$

5. $f(x) = \frac{4}{5x} - 3$

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