Inverses of Discrete Functions - Guided Lesson Explanation

Explanation#1

To find the inverse exchange first write the function in terms of y and then solve for y.

$$f(x) = 8x + 2$$

$$y = 8x + 2$$

$$x = 8y + 2$$

$$x - 2 = 8y$$

$$\frac{x-2}{8} = y$$

So, the answer is $f^{-1}(x) = \frac{x-2}{8}$

Explanation#2

To find the inverse exchange first write the function in terms of y and then solve for y.

$$f(x) = \sqrt{x+4}$$

$$y = \sqrt{x+4}$$

$$x = \sqrt{y+4}$$

$$x^2 = (\sqrt{y+4})^2 \qquad \text{Square both side of the equation}$$

$$x^2 = y + 4$$

$$x^2 - 4 = y$$

So, the answer is $f^{-1}(x) = x^2 - 4$

Explanation#3

To find the inverse exchange first write the function in terms of y and then solve for y.

$$f(x) = 4x + 3 + 6$$

$$y = 4x + 3 + 6$$

$$x = 4y + 3 + 6$$

$$x - 3 - 6 = 4y$$

$$x - 9 = 4y$$

$$\frac{x-9}{4} = y$$

So, the answer is $f^{-1}(x) = \frac{x-9}{4}$