

Inverse of Linear Functions

The procedure for finding the inverse of a linear function is fairly basic.

1. Switch “x” and “y”.
2. Solve for “y”.

Example: Find the inverse ($f^{-1}(x)$) of $f(x) = \frac{4-6x}{7}$: This means $y = \frac{4-6x}{7}$, so

switch “x” and “y”: $x = \frac{4-6y}{7}$. Now, solve back for y: $7 \bullet x = \frac{4-6y}{7} \bullet 7$

$$7x - 4 = 4 - 6y - 4 \quad \Rightarrow \quad \frac{7x-4}{-6} = \frac{+6y}{+6} \quad \Rightarrow \quad \frac{7x-4}{-6} = y = f^{-1}(x)$$

Find $f^{-1}(x)$ of each linear function.

1. $f(x) = 4x - 5$ 2. $f(x) = \frac{x}{6}$ 3. $f(x) = \frac{2x}{5} + 4$ 4. $f(x) = \frac{2x-5}{4}$

5. $f(x) = \frac{4x+7}{2}$ 6. $f(x) = 12 - \frac{3}{4}x$ 7. $f(x) = \frac{8-3x}{13}$ 8. $f(x) = \frac{-3x+4}{-9}$

9. $f(x) = \frac{3x}{7}$ 10. $f(x) = \frac{9x-1}{-8}$ 11. $f(x) = \frac{15x-13}{21}$ 12. $f(x) = \frac{7.6x+3.2}{8.5}$

13. $f(x) = \frac{9x+5}{7}$ 14. $f(x) = \frac{6x-16}{-5}$ 15. $f(x) = \frac{-x-1}{-2}$ 16. $f(x) = 9 - 5x$