

Inverse Functions and Restricted Domains



Use the matching sheet ID when checking answers.

Use the material to work through each task. Show the requested response.

1. For $f(x) = 2x + 3$, find $f(4)$.

Answer: 11

2. For its inverse, find $f^{-1}(11)$.

Answer: 4

3. Find the inverse of $g(x) = 3x - 6$.

Answer: $g^{-1}(x) = (x + 6)/3$

4. Evaluate $g^{-1}(g(5))$.

Answer: 5

5. Why does x^2 over all real numbers fail the one-to-one condition?

Look for:

- Gives two different inputs with one output.

One possible response: Both 2 and -2 map to 4.

6. Restrict x^2 to $x \geq 0$. What inverse rule and domain are appropriate?

Look for:

- States the nonnegative restriction and inverse.

One possible response: The inverse is $\sqrt{x}$ with input domain $x \geq 0$.

Open responses use criteria and an illustrative response. Other well-supported responses can be acceptable.