

I. Inverse Function Introduction –

1. $f(x) = 2x$ & $g(x) = \frac{1}{2}x$ are “inverses”
2. $f(x) = x + 2$ & $g(x) = x - 2$ “ ”
3. $f(x) = x^2$ & $g(x) = \sqrt{x}$ * “ ”

II. Find $(f \circ g)(x)$ for each of the three pairs f & g

1. $f[g(x)] =$

2. $f[g(x)] =$

3. $f[g(x)] =$

* almost but not quite...

III. Inverse Function Essentials –

1. Definition (p.163):

$f(\mathbf{x})$ & $g(\mathbf{x})$ are inverse functions whenever

$$f[g(\mathbf{x})] = \mathbf{x} = g[f(\mathbf{x})]$$

2. Notation (p.160):

When $f(\mathbf{x})$ & $g(\mathbf{x})$ are inverses, the functional notation $f^{-1}(\mathbf{x}) = g(\mathbf{x})$ & $g^{-1}(\mathbf{x}) = f(\mathbf{x})$ is often utilized (to denote their “inverse” relationship)...

3. Procedure for finding f^{-1} (p.162):

Swap the variables \mathbf{x} & \mathbf{y} , solve the resulting equation for \mathbf{y} (and substitute the f^{-1} notation).

IV. Examples (p.168): Exercises #48,52,56,60,66

HW: pp.168-169 / Exercises #45-65(odd),81
Read section 2.5 (pp.157-166)