

5-6 Part 2 Inverse Functions (cont'd)

Anchor: Inverse Relations

What is inverse relation of $y = x^2$ ← ask how to find (reverse $x \leftrightarrow y$)

$$y = \pm \sqrt{x}$$

Is this a function? No ← ask why (fails vertical line test)

Then slicing:

Determine inverse function by including restriction on domain

by restricting domain

$$(1) f(x) = x^2 \quad f^{-1}(x) = \sqrt{x}, x \geq 0$$

$$(2) f(x) = x^2 - 4 \quad f^{-1}(x) = \sqrt{x+4}, x \geq -4$$

$$(3) f(x) = (x-4)^2 \quad f^{-1}(x) = \sqrt{x} + 4, x \geq 0$$

$$(4) f(x) = x^2 + 8x + 16 \quad f^{-1}(x) = \sqrt{x} - 4, x \geq 0$$

$$(5) f(x) = \sqrt{x-2} \quad f^{-1}(x) = x^2 + 2, x \geq 0$$

$$(6) f(x) = \sqrt{x+4} \quad f^{-1}(x) = x^2 - 4, x \geq 0$$

Consolidation:

To determine inverse function:

1. Reverse x & y and solve for y

2. Restrict domain so that inverse is a function