

**Answer on Question #48700 – Math - Algebra**

Suppose  $h(x)=x^2+8x+2$ , with the domain of  $h$  being the set of positive numbers.  
Evaluate  $h^{-1}(10)$

**Solution.**

$$h(h^{-1}(x)) = x \rightarrow h(h^{-1}(10)) = 10.$$

$$\text{Let } h^{-1}(10) = y \rightarrow h(y) = 10 \rightarrow y^2 + 8y + 2 = 10 \rightarrow$$

$$\rightarrow y^2 + 8y - 8 = 0 \rightarrow y = -4 \pm 2\sqrt{6}$$

**Domain of  $h(x)$  is the set of positive numbers.**

**Thus,  $y$  must be positive, and, finally,  $h^{-1}(10) = -4 + 2\sqrt{6}$ .**