

WRITE YOUR NAME:

MAC 2241 Quiz 1
Friday August 24th

Question 1. Find the domain of the given function.

$$f(x) = \sqrt{x-3} + \sqrt{10-x}$$

For $\sqrt{x-3}$ to be defined, must have $x-3 \geq 0$

For $\sqrt{10-x}$ to be defined, must have $10-x \geq 0$

For $f(x)$ to be defined, both the above must be true.

$$x - 3 \geq 0$$

$$+3 \quad +3$$

$$x \geq 3$$

$$\text{or } 3 \leq x$$

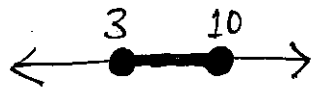
$$10 - x \geq 0$$

$$+x \quad +x$$

$$10 \geq x \quad \text{or } x \leq 10$$

Both these conditions must be true, so $3 \leq x \leq 10$.

($x \geq 3$ and $x \leq 10$.)



Another approach. The above function $f(x)$ consists of 3 steps.

Step 1: Compute $\sqrt{x-3}$.

Step 2: Compute $\sqrt{10-x}$.

Step 3: Add together the result of Step 1 and the result of Step 2.

So to compute $f(x)$, both Step 1 and Step 2 need to be possible.