Answer to Question #86811 – Math – Calculus

Question

Find the domain of $f(x) = \sqrt{(x-2)(x-3)}$.

Solution

The function is $f(x) = \sqrt{(x-2)(x-3)}$

Now the function f is defined when $(x-2)(x-3) \geq 0$.

i.e. $(x-3) \geq 0, (x-2) \geq 0$ or $(x-2) \leq 0, (x-3) \leq 0$,

i.e. $(x-3) \geq 0$ or $(x-2) \leq 0$

i.e., $x \geq 3$ or $x \leq 2$

Hence the domain of $f(x)$ is $(-\infty, 2] \cup [3, \infty)$.

Answer: $D(f) = (-\infty, 2] \cup [3, \infty)$.