Answer on Question #52498 – Math – Calculus

Task

find points of discontinuity, if any

f(x)=|x-3| ,if x>=1

=x*x/4 - 3x/2 +13/4 ,if x<1

Solution

$$f(x)=\begin{cases}|x-3|, x\geq,1\\ \frac{x^2}{4}-\frac{3x}{2}+\frac{13}{4}, x<1\end{cases}.$$

We have to check discontinuity at point x = 1, if the branches correspond to the same value at x = 1.

The first branch yields |1-3| = 2 and the second branch yields 1/4-3/2+13/4 = 2 at x = 1 .

We can see the functions approach the same value at x = 1, so there is no discontinuity at x = 1.

Answer: there are no discontinuities.