Answer on Question #58945 – Math – Calculus

Question

What is the maximum of relative extrema contained in the graph of this function?

 $f(x)=3x^4-x^2+4x-2$.

Solution

Given function

$f(x)=3x^4-x^2+4x-2$;

its derivative

$f'(x)=12x^3-2x+4$;

set the derivative equal to 0:

 $f'(x)=12x^3-2x+4 = 0$

⇨   x = -0.773;
other roots are complex.

For x < -0.773, f'(x) < 0;

For x > -0.773, f'(x) > 0;

⇨   the function $f(x)=3x^4-x^2+4x-2$ attains a local minimum at x = -0.773.

Answer: local minimum at x = -0.773.