Analysis of $x \mapsto 2\,x^3 + x^2 - 13\,x + 6$

We consider the function defined by $f(x) = 2\,x^3 + x^2 - 13\,x + 6$.

Its domain of definition is $\mathbb{R}$.

It is derivable on $\mathbb{R}$.

Its derivative is $f'(x) = 6\,x^2 + 2\,x - 13$.

It admits the below limits:

$$\lim_{x \to -\infty} f(x) = -\infty$$

$$\lim_{x \to +\infty} f(x) = +\infty$$

A table of values is:

x	$-\frac{\sqrt{79}}{6} - \frac{1}{6} \approx -1.64$	$\frac{\sqrt{79}}{6} - \frac{1}{6} \approx 1.31$
$f(x)$	$\frac{79^{\frac{3}{2}}}{54} + \frac{221}{27} \approx 21.1$	$\frac{221}{27} - \frac{79^{\frac{3}{2}}}{54} \approx -4.81$

Its table of variations is:

x	$-\infty$		$-\frac{\sqrt{79}}{6} - \frac{1}{6}$		$\frac{\sqrt{79}}{6} - \frac{1}{6}$		$+\infty$
$f'(x)$		$+$	0	$-$	0	$+$	
$f(x)$	$-\infty$	$\nearrow$	$\frac{79^{\frac{3}{2}}}{54} + \frac{221}{27}$	$\searrow$	$\frac{221}{27} - \frac{79^{\frac{3}{2}}}{54}$	$\nearrow$	$+\infty$

Its graph is:

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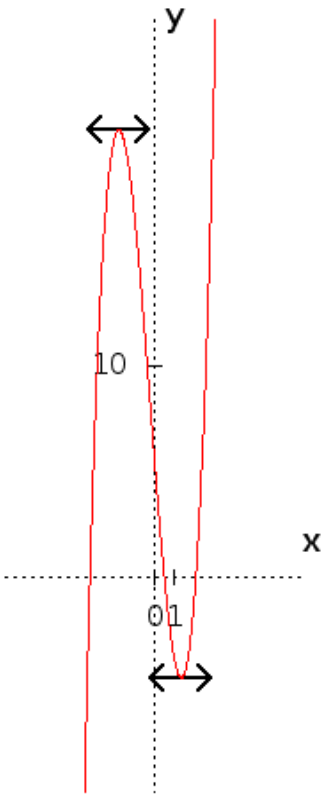

Note: these results have been obtained from an automated program and are not guaranteed to be exact.