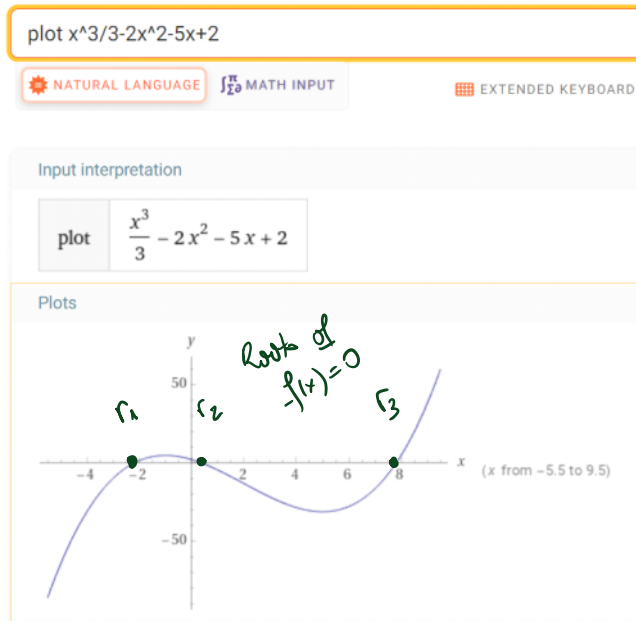


T 49-54. Graphing with technology Make a complete graph of the following functions. A graphing utility is useful in locating intercepts, local extreme values, and inflection points.

49.  $f(x) = \frac{1}{3}x^3 - 2x^2 - 5x + 2$

Screen clipping taken: 10/21/2022 12:27 PM

Use Wolfram Alpha to plot



Screen clipping taken: 10/21/2022 12:29 PM

Place qualitative plot underneath table & compare to computer plot.

Construct table

$$f'(x) = x^2 - 4x - 5 = (x-5)(x+1)$$

$$f'(x) = 0 \Rightarrow x_1 = -1; x_2 = 5$$

$$f''(x) = 2x - 4$$

$$f''(x) = 0 \Rightarrow x_3 = 2$$

$x$	$-\infty$	$r_1$ -2	$x_1$ -1	$r_2$ 0.5	$x_2$ 2	$x_2$ 5	$r_3$ 7.7	$\infty$			
$f(x)$	$-\infty$	$\nearrow 0$	$\nearrow$	$\searrow 0$	$\searrow$	$\searrow$	$\nearrow 0$	$\nearrow \infty$			
$f'(x)$	$\infty$	+	+	0	-	-	-	0	+	+	$\infty$
$f''(x)$	$-\infty$	-	-	-	0	+	+	+	+	$\infty$	

