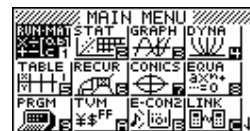


Finding turning points in the RUN-MAT icon.

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Select the **RUN-MAT** icon from the **Main Menu** by using the arrow keys to highlight the **RUN-MAT** icon or by pressing the **[1]** key.



[OPTN] [F4]

[F6]

[F1]

Notation: FMin(equation, lower bound, upper bound)
FMax(equation, lower bound, upper bound)

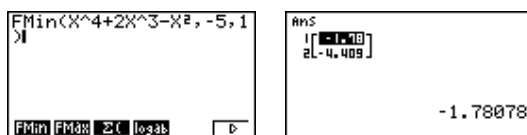
The calculator will check to minimise (maximise) the function value over the specified domain given as the lower and upper bound.

Example: Find the:

- minimum co-ordinates of $y = x^4 + 2x^3 - x^2$ on the domain $-5 \leq x \leq 1$
- maximum co-ordinates of $y = x^4 + 2x^3 - x^2$ on the domain $-5 \leq x \leq 1$
- maximum co-ordinates of $y = x^4 + 2x^3 - x^2$ on the domain $0 \leq x \leq 6$.

Answers:

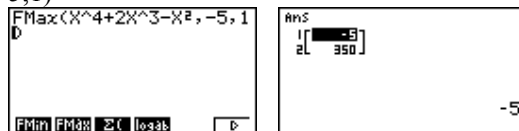
- (a) $Fmin(x^4 + 2x^3 - x^2, -5, 1)$



The minimum point is $(-1.78, -4.41)$ over this domain $-5 \leq x \leq 1$.

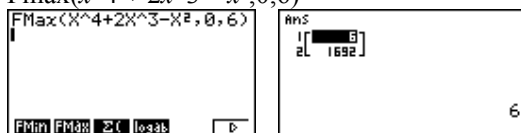
[Note: This is a local minimum point.]

- (b) $Fmax(x^4 + 2x^3 - 3x^2, -5, 1)$



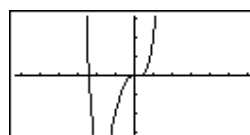
The maximum point is $(-5, 350)$ over this domain $-5 \leq x \leq 1$.

- (c) $Fmax(x^4 + 2x^3 - x^2, 0, 6)$

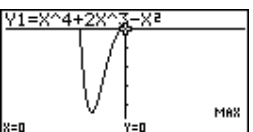
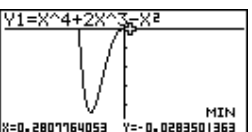
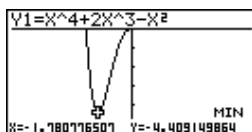
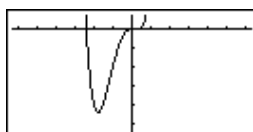


The maximum point is $(6, 1692)$ over this domain $0 \leq x \leq 6$.

Local maximum and minimum points **NEED** to be found in the **GRAPH** icon.



Using the **V-window:**



The maximum point is $(0, 0)$. The two minimum points are $(-1.78, -4.41)$ and $(0.281, -0.028)$.