5 GC tricks to check your work

The keystrokes from the reel: what each one does, and how to use it to catch a mistake before you hand in. TI-84 Plus CE.

TRICK	KEYS	USE IT TO CHECK
1 Definite integrals	MATH 9	any exact integral, area or volume
2 Inequalities in Y=	2ND MATH	an inequality's solution set (signs in TEST)
3 The Σ template	MATH 0	a sum you found in terms of n
4 d/dx, and nested	MATH 8	gradients and Maclaurin coefficients
5 Numeric Solver	MATH, scroll up	any "use your GC to solve"

These are the quick versions. For the in-depth techniques (third derivatives, checking a whole Maclaurin series, fitting checks into a timed paper), **text Jay on WhatsApp at 8991 9384** to schedule a lesson.

1 Checking an exact answer

1 · Definite integrals MATH 9

Opens the integral template. Fill in the limits, type the function in X, press enter. You get a decimal, so type your exact answer on the next line and compare.

CHECK IT RI 2026 PRELIM

By parts, you get $\int_0^1 x\mathrm{e}^{-x}\,dx = 1 - 2\mathrm{e}^{-1}$. Is it right?

> GC: $\int_0^1 X\mathrm{e}^{-X}\,dX = 0.2642411177$
>
> Yours: $1 - 2\mathrm{e}^{-1} = 0.2642411177$ ✓
>
> *Same to ten digits, so the exact answer is right.*

CARELESS MISTAKES

- **Degree mode.** Check MODE says RADIAN before any calculus check, or every trig answer is off.
- **Use X, not a typed letter.** The templates work in X, from the X,T,θ,n key.

2 Inequalities and sums

2 · Inequalities, typed straight into Y= Y= 2ND MATH

Type the whole inequality into Y_1 (the signs are in the TEST menu). The GC reads it as true $= 1$ or false $= 0$, so the graph sits at 1 exactly where the inequality holds.

CHECK IT

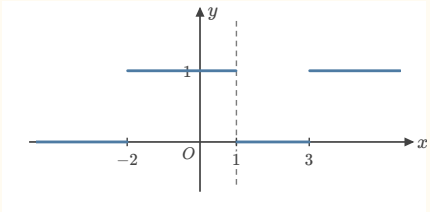
Solve $\dfrac{x^2 - x - 6}{x - 1} > 0$.

$\mathrm{Y}_1 = \dfrac{X^2 - X - 6}{X - 1} > 0$

The graph is 1 on $-2 < x < 1$ and on $x > 3$.

$-2 < x < 1$ or $x > 3$

Algebra agrees: $\dfrac{(x-3)(x+2)}{x-1}$ *changes sign at* -2, 1 *and* 3.



at 1 where the inequality is true

3 · The Σ template MATH 0

Opens the sum template. Type the general term in X and the two limits. To check a formula in n, put your answer in Y_1 (with X for n) and compare $\mathrm{Y}_1(9)$ with the sum to 9.

CHECK IT TMJC 2026 PRELIM

You found $\sum_{r=4}^{n}(r-3)(2r-1) = \frac{1}{6}(n-2)(n-3)(4n+5)$.

$\displaystyle\sum_{X=4}^{9}(X-3)(2X-1) = 287$

$\mathrm{Y}_1(9) = 287$ ✓

CARELESS MISTAKES

- **The graph hides endpoints.** For $\leq$ or $\geq$, look up the critical values in TABLE: 1 means included.
- **Don't test n at the lower limit.** Pick something like 9: a slip multiplied by $(n-4)$ vanishes at $n = 4$.

3 Derivatives and solving

4 · d/dx at a point, and nested MATH 8

Differentiates at one point. Put a d/dx inside another (inner box X, outer box the point) and you get the second derivative: every Maclaurin coefficient, checked.

CHECK IT

For $y = \tan^{-1}(2x)$ you found $y'(0) = 2$ and $y''(0) = 0$.

$$\frac{d}{dX}\left(\tan^{-1}(2X)\right)\Big|_{X=0} = 2 \checkmark$$

$$\frac{d}{dX}\left(\frac{d}{dX}\left(\tan^{-1}(2X)\right)\Big|_{X=X}\right)\Big|_{X=0} = 0 \checkmark$$

The GC won't stack a third d/dx. For $y'''(0)$, nest two on your own dy/dx.

5 · Numeric Solver MATH then scroll up

Put the left side in E1 and the right side in E2, then choose SOLVE. It finds the unknown for you.

CHECK IT YIJC 2026 PRELIM

Solve $1.661168p(1-p) + 0.989632(1-p)^2 = 0.9$, where $0 < p < 1$.

E1: $1.661168X(1-X) + 0.989632(1-X)^2$, E2: 0.9

$X = 0.1985511597$, so $\boxed{p = 0.199}$ (3 s.f.)

It gives the root nearest its starting value. The other root, -0.672, isn't a probability.

CARELESS MISTAKES

- **Inner box must say X.** Put 0 there and the outer d/dx differentiates a constant: always 0.
- **The solver finds one root.** If there could be more, change the starting value and solve again.

BEFORE YOUR EXAM

- MODE says RADIAN.
- Every exact value matches its GC decimal.
- Every sum formula tested at one n.
- Every Maclaurin coefficient matched to a d/dx line.

Want the in-depth version? Jay teaches the full checking routine for every H2 topic, the GC way. Text him on WhatsApp at **8991 9384** to schedule a lesson.