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REVISION NOTES

BA II Plus: Keystroke Sheet

The approved calculator, set up correctly and driven fast

30 keystroke routines **2** approved calculators

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HOW TO USE THIS

Two calculators are permitted in a CFA or FRM exam room: the Texas Instruments BA II Plus (including the Professional) and the HP 12C. Nothing else. This sheet covers the BA II Plus, which is what the large majority of candidates use.

The calculator is not a side issue. A candidate who is fluent on it gains real minutes across a three-hour session, and minutes are marks. A candidate who is not will lose questions they actually knew how to answer.

Do the setup section ONCE, on a calculator you have owned for months — not on a new one you bought the week before. Then drill the routines until they are muscle memory.

A warning worth reading twice: the single most expensive habit is failing to clear the TVM registers between problems. A leftover value from the previous question produces a confident, plausible, wrong answer — and you will never notice.

SETUP — DO THIS ONCE, NOW · before anything else

These defaults are wrong out of the box for exam purposes. Fix them today, not in June.

Set decimal places to 9 (floating)

2ND → FORMAT → 9 → ENTER → 2ND → QUIT

► The factory default is 2 decimal places. That rounds your intermediate results and will cost you answers that fall between two options. Set it to 9 and let the calculator carry full precision.

Set payments per year to 1

2ND → P/Y → 1 → ENTER → 2ND → QUIT

► The default is 12. Leave it there and every TVM answer will be silently wrong. With $P/Y = 1$, YOU control the periods — enter the periodic rate in I/Y and the number of periods in N , which is what every CFA formula assumes.

Confirm chain (not AOS) calculation mode

2ND → FORMAT → ↓ ↓ ↓ ↓ → (Chn / AOS)

► Chain mode evaluates left to right, which is how most candidates think. AOS applies algebraic precedence. Either works — but know which one you are in, because $2 + 3 \times 4$ gives 20 in one and 14 in the other.

Clear TVM before EVERY problem

2ND → CLR TVM (the CE|C key)

► The habit that saves the most marks on the whole paper. A leftover PMT or FV from the last question will produce a wrong answer that looks entirely reasonable. Make this reflexive: new question, clear TVM.

Clear a worksheet you are in

2ND → CLR WORK

► Different from CLR TVM. Use it inside the cash flow, statistics or amortisation worksheets. Old cash flows left in CF are the second most common source of silent wrong answers.

Reset everything to factory

2ND → RESET → ENTER

► The nuclear option. Useful if the calculator is behaving oddly — but it restores $P/Y = 12$ and 2 decimal places, so you must redo the setup above immediately afterwards.

THE SETUP THAT ACTUALLY MATTERS

- $P/Y = 1$ and 9 decimal places. If you do nothing else from this sheet, do those two.
- Buy your calculator early and use it for every practice question. Fluency is built over months, not in a revision week.
- Bring a spare, or at least spare batteries. A dead calculator in the exam hall is a failed exam, and invigilators cannot help you.

TIME VALUE OF MONEY · the core engine

Five keys: N, I/Y, PV, PMT, FV. Enter any four, compute the fifth. Signs matter.

The sign convention

Outflows **NEGATIVE**, inflows **POSITIVE**.

► Money you pay out (a purchase, a deposit) is negative. Money you receive is positive. If PV and FV have the same sign, the calculator will return a nonsense rate or an Error 5. That error message is usually telling you the signs are wrong, not the maths.

Present value of a future sum

2ND CLR TVM

N = periods, I/Y = periodic rate (as a percent)

FV = amount, PMT = 0

CPT → PV

► Enter I/Y as 5, not 0.05. This is the one place the calculator wants a percentage rather than a decimal, and it catches people constantly.

Ordinary annuity vs annuity due

Ordinary (END): 2ND → BGN → 2ND → SET (until END shows) → 2ND → QUIT

Annuity due (BGN): same keys, until BGN shows

► Default is END, which is correct for an ordinary annuity. Switch to BGN for payments at the START of each period — leases, rent, some pension problems. The BGN indicator appears in the display; if you see it and did not want it, that is your bug.

Solving for the interest rate

Enter N, PV, PMT, FV with correct signs

CPT → I/Y

► Returns the PERIODIC rate. If the periods are quarterly, multiply by 4 to annualise. The calculator will not do this for you and the exam will offer the un-annualised figure as a distractor.

Solving for the number of periods

Enter I/Y, PV, PMT, FV

CPT → N

► Often returns a non-integer, which is fine and correct. "How long until this grows to X?" = 8.4 years is a legitimate answer.

THE TVM RULES

- DIVIDE the rate, MULTIPLY the periods. 12% compounded quarterly $\Rightarrow$ I/Y = 3, N = 4 per year.
- I/Y takes a percentage (5), not a decimal (0.05). Everything else takes plain numbers.
- An Error 5 almost always means your signs are wrong. Check that PV and FV have opposite signs.

CASH FLOW WORKSHEET — NPV AND IRR · uneven cash flows

For anything the TVM keys cannot handle: unequal payments, project appraisal, money-weighted return.

Entering uneven cash flows

CF → 2ND → CLR WORK (always clear first)

CF0 = initial outlay (usually **NEGATIVE**)

↓ C01 = first cash flow → ENTER

↓ F01 = how many times it repeats → ENTER

↓ C02 ... and so on

► The F (frequency) register is the time-saver nobody uses. If a \$500 cash flow repeats for six years, enter C01 = 500 and F01 = 6 rather than typing it six times.

Net present value

NPV → I = discount rate (as a percent) → ENTER
↓ → CPT

► Enter the rate as 8, not 0.08. NPV > 0 means accept. This is also how you value any irregular stream — a bond with a changed coupon, a project, a lumpy dividend forecast.

Internal rate of return

IRR → CPT

► Returns the periodic IRR. Note it can fail (Error 7) when cash flows change sign more than once — the multiple-IRR problem, which is itself an examinable concept, not a calculator fault.

Money-weighted return

Enter the client's actual cash flows in CF
IRR → CPT

► Money-weighted return IS an IRR. Once you see that, every MWR question becomes a cash flow worksheet question — and they stop being hard.

CASH FLOW WORKSHEET DISCIPLINE

- CF → 2ND → CLR WORK, every single time. Old cash flows sitting in C03 will silently corrupt your NPV and you will not see them.
- CF0 is the cash flow at time ZERO. A cash flow at the end of year 1 goes in C01, not CF0. Getting this off by one period is the classic error.

STATISTICS WORKSHEET · mean, standard deviation, regression

Underused, and it turns several multi-step questions into two keystrokes.

Entering a data set

2ND → DATA → 2ND → CLR WORK
X01 = first value → ENTER → ↓ ↓
X02 = second value → ENTER → ↓ ↓
(the Y register is for regression — skip it with ↓ for one-variable data)

► For one-variable statistics, leave the Y values alone. Press ↓ twice to move from X01 to X02.

Reading the results

2ND → STAT → set to 1-V (one variable) → ↓
n, $\bar{x}$ (mean), Sx (SAMPLE std dev), σ_x (POPULATION std dev)

► The calculator gives you BOTH standard deviations. Sx divides by $(n - 1)$; σ_x divides by n . Choosing the wrong one is the single most common statistics error at Level I — and here the calculator has already done the hard part for you.

Linear regression

Enter paired X and Y values in DATA
2ND → STAT → set to LIN → ↓ repeatedly
a = intercept, b = slope, r = correlation

► The slope b is also the beta if X is the market return and Y is the asset return. Recognising that saves you a covariance-over-variance computation entirely.

THE STATISTICS SHORTCUT

- Sx is SAMPLE ($n - 1$). σ_x is POPULATION (n). The exam gives you a population and hopes you take Sx — and it is right there on the screen next to it.

- For a correlation or beta question with paired data, LIN mode is far faster than computing covariance by hand.

BOND WORKSHEET & OTHER ROUTINES · high-yield shortcuts

Bond pricing (the fast way)

2ND CLR TVM

N = periods to maturity, I/Y = periodic YTM

PMT = periodic coupon, FV = par (usually 100 or 1000)

CPT → PV (the price, as a negative)

► You do not need the dedicated BOND worksheet for a clean, coupon-date price. The TVM keys are faster, and a bond is just an annuity plus a lump sum. The answer comes out negative — that is the sign convention, not an error.

Yield to maturity

Enter N, PV (price, NEGATIVE), PMT, FV

CPT → I/Y

► Returns the PERIODIC yield. For a semi-annual bond, multiply by 2 to get the stated annual YTM — the exam will offer the unmultiplied figure as an option.

Effective annual rate

2ND → ICONV

NOM = nominal rate → ENTER → ↓

C/Y = compounding per year → ENTER → ↑ ↑

CPT on EFF

► Converts between nominal and effective rates in one worksheet. Works in both directions — enter EFF and compute NOM if you need to go the other way.

Depreciation

2ND → DEPR

Select method (SL, SYD, DB), then enter LIF, M01, CST, SAL

► Rarely worth the keystrokes under exam time. If a depreciation question appears, doing it by hand is usually faster than navigating the worksheet.

Memory registers

STO → 0 through 9 (store)

RCL → 0 through 9 (recall)

► Genuinely useful in multi-step vignettes where you need an intermediate result three questions later. Store it rather than rounding and re-typing — rounding intermediates is how you land between two answer options.

SPEED HABITS

- Never round an intermediate result. Store it (STO 1) and recall it (RCL 1). Rounding is how correct methods produce wrong answers.
- The bond worksheet is slower than the TVM keys for standard coupon-date pricing. Learn the fast way and skip the worksheet entirely.
- Learn where 2ND → QUIT is. Being stuck inside a worksheet while the clock runs is a needless kind of panic.

THE CALCULATOR RULES THAT DECIDE EXAMS

The three settings

- $P/Y = 1$. Non-negotiable. The factory default of 12 will silently ruin every TVM answer you produce.
- Decimal places = 9. Rounding at 2 decimals costs you answers that fall between options.
- END vs BGN — check the display. If BGN is showing and you wanted an ordinary annuity, every number is wrong.

The three habits

- 2ND → CLR TVM before every new problem. Reflexively. Without thinking about it.
- CF → 2ND → CLR WORK before every new cash flow problem. Old flows do not announce themselves.
- Store intermediates, never round them. STO 1, RCL 1.

The three traps

- I/Y takes a percent (5), not a decimal (0.05). Everything else takes plain numbers.
- Computed rates and yields are PERIODIC. Annualise them yourself — the calculator will not, and the exam offers the unannualised figure as a distractor.
- Error 5 means your signs are wrong, not your maths. Outflows negative, inflows positive.

Before exam day

- Only the TI BA II Plus (or Professional) and the HP 12C are permitted. Anything else will be confiscated and you will sit the exam without one.
- Bring a spare calculator or fresh batteries. Invigilators cannot lend you one, and a dead calculator is a failed exam.
- Use YOUR calculator for every practice question from today. Fluency is built over months. It cannot be crammed.

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