TinkerCode Cheat Sheet

CSC275 Mini BASIC-style Language (v0.1)

Launch & Menu

- Run: tinkercode.exe
- Menu options:
  1) Start REPL
  2) Load & Run guess.tkr
  3) Load & Run loan.tkr
  4) Load & Run primes.tkr
  5) Load & Run note.tkr
  6) Quit

From anywhere: MENU (or HOME) to show the menu again.

REPL Commands (no line numbers)

- HELP — show help
- NEW — clear current program
- LIST — show program lines
- RUN — compile & run current program
- SAVE file — save as file.tkr (quotes optional)
- LOAD file — load file.tkr (quotes optional)
- CLS — clear screen
- QUIT / EXIT — leave TinkerCode
- TYPE file / VIEW file / CAT file — print a text file with line numbers
- CSV file / SHOWCSV file — pretty-print CSV columns

Editing Code

- Add/replace a line: 10 PRINT "HI" → OK
- Delete a line: type the number alone (e.g., 10) → Deleted 10
- Immediate one-liner: type a statement without a number (runs right away)

Language Basics

- Variables: numeric by default; string variables end with $ (e.g., N$)
- Assignment: LET X = 42   (or)   X = 42
- Print: PRINT "A", X, Y   (comma or semicolon as separators)
- Input: INPUT "YOUR NAME"; N$ → prompt + read into N$
- Comments: REM this is a comment

Math & Functions

- Operators: + - * / ^
- Functions (parentheses required): ABS(x) INT(x) SIN(x) COS(x) SQRT(x) POW(x,y)
  RAND()
  TIME()
- Examples: SQRT(144) → 12 · POW(2,10) → 1024 · RAND() → 0..1 · TIME() →
  seconds
  since program start

Control Flow

- IF: IF X > 10 THEN 200 (THEN required; target is a line number)
- GOTO line: GOTO 100
- GOSUB / RETURN: call subroutine and return
- FOR / NEXT: counted loop with optional STEP

GOSUB demo:	FOR/NEXT demo:
100 GOSUB 500	10 FOR I = 1 TO 5
110 PRINT "back"	20 PRINT I
120 END	30 NEXT
500 PRINT "subroutine"	FOR/NEXT demo:
510 RETURN	

File I/O (CSV / logs / notes)

- Open files: OPENOUT #1, "out.txt" (truncate) · OPENAPP #1, "out.txt" (append) ·
  OPENIN
- #1, "in.txt" (read)
- Write CSV: PRINT# 1, A, B, C
- Read a line: LINEINPUT# 1 L$
- End-of-file check: IF EOF(1) THEN 200
- Close: CLOSE #1

Read-back recipe:

```
10 OPENIN #1, "schedule.csv"
20 LINEINPUT# 1 L$
30 PRINT L$
40 IF EOF(1) THEN 60
50 GOTO 20
60 CLOSE #1
70 END
```

Samples Included (auto-written on first run)

        guess.tkr — number guessing game
        loan.tkr — amortization → schedule.csv
        primes.tkr — list primes up to N
        note.tkr — append a note to log.txt

Handy Recipes

- Hello World
- Hello, Name
- Quick Note to different files
- View outputs

Hello World:

        10 PRINT "HELLO, WORLD!"
        20 END

Hello, Name:

        10 INPUT "YOUR NAME"; N$
        20 PRINT "HELLO, ", N$, "!"
        30 END

Quick Note (choose file at runtime):

        10 INPUT "FILE (e.g., work.txt)"; F$
        20 INPUT "NOTE"; N$
        30 OPENAPP #1, F$
        40 PRINT# 1, TIME(), N$
        50 CLOSE #1
        60 PRINT "Added to ", F$
        70 END

View outputs:
        CSV schedule.csv
        TYPE log.txt

Troubleshooting

- Parse error: Expected THEN → IF must include THEN and target a line number (e.g., IF X=1 THEN 100)
- Bad expression on EOF → Use as a function: EOF(1)
- Abort a running program (stuck on input) → Ctrl+C (or Ctrl+Z then Enter)

Quick Workflow

- From a fresh start to saved program

Flow:

```
MENU
2                ; auto-runs guess.tkr (demo), returns to REPL
NEW              ; start fresh

    10 INPUT "N"; N
    20 FOR I=1 TO N
    30 PRINT I^2
    40 NEXT

RUN
SAVE squares
```

Now have squares.tkr