

## HP-35s Calculator Program – TRIANGLE SOLUTION (PROGRAM BASED ON SINE & COSINE RULES)

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| Line | Instruction         | Process  | User Instruction   |
|------|---------------------|--|--|
| T001 | LBL T               | Establishing the library                             |  |
| T002 | CLSTK               | Clearing memory and setting flags                    |  |
| T003 | FS? 10              |  |  |
| T004 | GTO T008            |  |  |
| T005 | SF 1                |  |  |
| T006 | SF 10               |  |  |
| T007 | GTO T009            |  |  |
| T008 | CF 10               |  |  |
| T009 | TRIANGLE SOLVE      | Title  | Key in using EQN, RCL T, RCL R, etc                      |
| T010 | PSE                 | Short Pause  |  |
| T011 | PSE                 | Short Pause  |  |
| T012 | 0                   |  |  |
| T013 | STO T               | Clearing variable T                                  |  |
| T014 | 3 SIDES             | Prompt for method to be followed                     | 3 sides known solve for angles                           |
| T015 | PSE                 | Short Pause  |  |
| T016 | INPUT T             | Enter 1 for Yes, 0 for No                            |  |
| T017 | RCL T               | Process  |  |
| T018 | x#0?                |  |  |
| T019 | GTO T049            |  |  |
| T020 | 2 SIDES             | Prompt for method to be followed                     | 2 sides & angle between known                            |
| T021 | PSE                 | Short Pause  |  |
| T022 | PSE                 | Short Pause  |  |
| T023 | INPUT T             | Enter 1 for Yes, 0 for No                            |  |
| T024 | RCL T               | Process  |  |
| T025 | x#0?                |  |  |
| T026 | GTO T122            |  |  |
| T027 | 2 SIDE NO $\theta$  | Prompt for method to be followed                     | 2 sides known but angle known is not between known sides |
| T028 | PSE                 | Short Pause  |  |
| T029 | PSE                 | Short Pause  |  |
| T030 | INPUT T             | Enter 1 for Yes, 0 for No                            |  |
| T031 | RCL T               | Process  |  |
| T032 | x#0?                |  |  |
| T033 | GTO T279            |  |  |
| T034 | 2 $\theta$ INC SIDE | Prompt for method to be followed                     | 2 angles & side between are known                        |
| T035 | PSE                 | Short Pause  |  |
| T036 | PSE                 | Short Pause  |  |
| T037 | INPUT T             | Enter 1 for Yes, 0 for No                            |  |
| T038 | RCL T               | Process  |  |
| T039 | x#0?                |  |  |
| T040 | GTO T179            |  |  |
| T041 | 2 $\theta$ NO SIDE  | Prompt for method to be followed                     | 2 angles & side not between known                        |
| T042 | PSE                 | Short Pause  |  |
| T043 | PSE                 | Short Pause  |  |
| T044 | INPUT T             | Enter 1 for Yes, 0 for No                            |  |
| T045 | RCL T               | Process  |  |
| T046 | x#0?                |  |  |
| T047 | GTO T229            |  |  |
| T048 | GTO T012            | User did not chose any option, program goes to start |  |
| T049 | ENTER SIDE 1        | Prompt to enter value                                |  |
| T050 | PSE                 | Short Pause  |  |
| T051 | INPUT S             | Process  |  |
| T052 | RCL S               |  |  |
| T053 | STO A               |  |  |
| T054 | ENTER SIDE 2        | Prompt to enter value                                |  |
| T055 | PSE                 | Short Pause  |  |
| T056 | INPUT S             | Process  |  |
| T057 | RCL S               |  |  |
| T058 | STO B               |  |  |
| T059 | ENTER SIDE 1        | Prompt to enter value                                |  |
| T060 | PSE                 | Short Pause  |  |

|      | INPUT S          | Process            |
|------|------------------|--------------------|
| T061 | INPUT S          |                    |
| T062 | RCL S            |                    |
| T063 | STO C            |                    |
| T064 | x^2              |                    |
| T065 | RCL B            |                    |
| T066 | x^2              |                    |
| T067 | +                |                    |
| T068 | RCL A            |                    |
| T069 | x^2              |                    |
| T070 | -                |                    |
| T071 | RCL÷ B           |                    |
| T072 | RCL÷ C           |                    |
| T073 | 2                |                    |
| T074 | ÷                |                    |
| T075 | ACOS             |                    |
| T076 | ANGLE 1=         |                    |
| T077 | PSE              |                    |
| T078 | STOP             |                    |
| T079 | RCL C            |                    |
| T080 | x^2              |                    |
| T081 | RCL A            |                    |
| T082 | x^2              |                    |
| T083 | +                |                    |
| T084 | RCL B            |                    |
| T085 | x^2              |                    |
| T086 | -                |                    |
| T087 | RCL÷ C           |                    |
| T088 | RCL÷ A           |                    |
| T089 | 2                |                    |
| T090 | ÷                |                    |
| T091 | ACOS             |                    |
| T092 | ANGLE 2=         |                    |
| T093 | PSE              |                    |
| T094 | STOP             |                    |
| T095 | RCL B            |                    |
| T096 | x^2              |                    |
| T097 | RCL A            |                    |
| T098 | x^2              |                    |
| T099 | +                |                    |
| T100 | RCL C            |                    |
| T101 | x^2              |                    |
| T102 | -                |                    |
| T103 | RCL÷ A           |                    |
| T104 | RCL÷ B           |                    |
| T105 | 2                |                    |
| T106 | ÷                |                    |
| T107 | ACOS             |                    |
| T108 | STO D            |                    |
| T109 | ANGLE 3=         |                    |
| T110 | PSE              |                    |
| T111 | STOP             |                    |
| T112 | RCL D            |                    |
| T113 | SIN              |                    |
| T114 | 2                |                    |
| T115 | ÷                |                    |
| T116 | RCL× A           |                    |
| T117 | RCL× B           |                    |
| T118 | AREA=            |                    |
| T119 | PSE              |                    |
| T120 | STOP             |                    |
| T121 | GTO T375         | Concluding Process |
| T122 | ENTER SHORT SIDE | Processing         |
| T123 | PSE              |                    |
| T124 | INPUT S          |                    |
| T125 | RCL S            |                    |
| T126 | STO A            |                    |
| T127 | ENTER LONG SIDE  |                    |
| T128 | PSE              |                    |

|      |               |                    |
|------|---------------|--------------------|
| T129 | INPUT S       |                    |
| T130 | RCL S         |                    |
| T131 | STO B         |                    |
| T132 | ENTER ANGLE 3 |                    |
| T133 | PSE           |                    |
| T134 | INPUT Q       |                    |
| T135 | RCL Q         |                    |
| T136 | STO C         |                    |
| T137 | COS           |                    |
| T138 | RCL× A        |                    |
| T139 | RCL× B        |                    |
| T140 | 2             |                    |
| T141 | ×             |                    |
| T142 | RCL A         |                    |
| T143 | x^2           |                    |
| T144 | x<>y          |                    |
| T145 | -             |                    |
| T146 | RCL B         |                    |
| T147 | x^2           |                    |
| T148 | +             |                    |
| T149 | √x            |                    |
| T150 | STO D         |                    |
| T151 | SIDE 3=       |                    |
| T152 | PSE           |                    |
| T153 | VIEW D        |                    |
| T154 | RCL C         |                    |
| T155 | SIN           |                    |
| T156 | RCL÷ D        |                    |
| T157 | STO D         |                    |
| T158 | RCL× A        |                    |
| T159 | ASIN          |                    |
| T160 | ANGLE 1=      |                    |
| T161 | PSE           |                    |
| T162 | STOP          |                    |
| T163 | RCL D         |                    |
| T164 | RCL× B        |                    |
| T165 | ASIN          |                    |
| T166 | ANGLE 2=      |                    |
| T167 | PSE           |                    |
| T168 | STOP          |                    |
| T169 | RCL C         |                    |
| T170 | SIN           |                    |
| T171 | RCL× A        |                    |
| T172 | RCL× B        |                    |
| T173 | 2             |                    |
| T174 | ÷             |                    |
| T175 | AREA=         |                    |
| T176 | PSE           |                    |
| T177 | STOP          |                    |
| T178 | GTO T375      | Concluding Process |
| T179 | ENTER ANGLE 1 | Processing         |
| T180 | PSE           |                    |
| T181 | INPUT Q       |                    |
| T182 | RCL Q         |                    |
| T183 | STO A         |                    |
| T184 | ENTER ANGLE 2 |                    |
| T185 | PSE           |                    |
| T186 | INPUT Q       |                    |
| T187 | RCL Q         |                    |
| T188 | STO B         |                    |
| T189 | ENTER SIDE 3  |                    |
| T190 | PSE           |                    |
| T191 | INPUT S       |                    |
| T192 | RCL S         |                    |
| T193 | STO C         |                    |
| T194 | 180           |                    |
| T195 | RCL- A        |                    |
| T196 | RCL- B        |                    |

|      |               |                    |
|------|---------------|--------------------|
| T197 | STO D         |                    |
| T198 | ANGLE 3=      |                    |
| T199 | PSE           |                    |
| T200 | STOP          |                    |
| T201 | RCL C         |                    |
| T202 | RCL D         |                    |
| T203 | SIN           |                    |
| T204 | STO E         |                    |
| T205 | ÷             |                    |
| T206 | STO F         |                    |
| T207 | RCL A         |                    |
| T208 | SIN           |                    |
| T209 | ×             |                    |
| T210 | STO× E        |                    |
| T211 | SIDE 1=       |                    |
| T212 | PSE           |                    |
| T213 | STOP          |                    |
| T214 | RCL F         |                    |
| T215 | RCL B         |                    |
| T216 | SIN           |                    |
| T217 | ×             |                    |
| T218 | STO× E        |                    |
| T219 | SIDE 2=       |                    |
| T220 | PSE           |                    |
| T221 | STOP          |                    |
| T222 | RCL E         |                    |
| T223 | 2             |                    |
| T224 | ÷             |                    |
| T225 | AREA=         |                    |
| T226 | PSE           |                    |
| T227 | STOP          |                    |
| T228 | GTO T375      | Concluding Process |
| T229 | ENTER ANGLE 1 | Processing         |
| T230 | PSE           |                    |
| T231 | INPUT Q       |                    |
| T232 | RCL Q         |                    |
| T233 | STO A         |                    |
| T234 | ENTER ANGLE 3 |                    |
| T235 | PSE           |                    |
| T236 | INPUT Q       |                    |
| T237 | RCL Q         |                    |
| T238 | STO B         |                    |
| T239 | ENTER SIDE B  |                    |
| T240 | PSE           |                    |
| T241 | INPUT S       |                    |
| T242 | RCL S         |                    |
| T243 | STO C         |                    |
| T244 | RCL B         |                    |
| T245 | SIN           |                    |
| T246 | ÷             |                    |
| T247 | STO D         |                    |
| T248 | RCL A         |                    |
| T249 | SIN           |                    |
| T250 | ×             |                    |
| T251 | SIDE 1=       |                    |
| T252 | PSE           |                    |
| T253 | STOP          |                    |
| T254 | 10            |                    |
| T255 | RCL- A        |                    |
| T256 | RCL- B        |                    |
| T257 | STO E         |                    |
| T258 | ANGLE 2=      |                    |
| T259 | PSE           |                    |
| T260 | STOP          |                    |
| T261 | RCL E         |                    |
| T262 | SIN           |                    |
| T263 | RCL× D        |                    |
| T264 | STO E         |                    |

|      |               |  |  |
|------|---------------|--|--|
| T265 | SIDE 2=       |  |  |
| T266 | PSE           |  |  |
| T267 | STOP          |  |  |
| T268 | RCL E         |  |  |
| T269 | RCL× C        |  |  |
| T270 | RCL A         |  |  |
| T271 | SIN           |  |  |
| T272 | 2             |  |  |
| T273 | ÷             |  |  |
| T274 | ×             |  |  |
| T275 | AREA=         |  |  |
| T276 | PSE           |  |  |
| T277 | STOP          |  |  |
| T278 | GTO T375      |  |  |
| T279 | ENTER SIDE 1  |  |  |
| T280 | PSE           |  |  |
| T281 | INPUT S       |  |  |
| T282 | RCL S         |  |  |
| T283 | STO A         |  |  |
| T284 | ENTER SIDE 2  |  |  |
| T285 | PSE           |  |  |
| T286 | INPUT S       |  |  |
| T287 | RCL S         |  |  |
| T288 | STO B         |  |  |
| T289 | ENTER ANGLE 1 |  |  |
| T290 | PSE           |  |  |
| T291 | INPIT Q       |  |  |
| T292 | RCL Q         |  |  |
| T293 | STO C         |  |  |
| T294 | SIN           |  |  |
| T295 | RCL÷ A        |  |  |
| T296 | STO D         |  |  |
| T297 | RCL× B        |  |  |
| T298 | ASIN          |  |  |
| T299 | STO E         |  |  |
| T300 | 180           |  |  |
| T301 | x<>y          |  |  |
| T302 | -             |  |  |
| T303 | RCL- C        |  |  |
| T304 | STO F         |  |  |
| T305 | SIN           |  |  |
| T306 | RCL× A        |  |  |
| T307 | RCL C         |  |  |
| T308 | SIN           |  |  |
| T309 | ÷             |  |  |
| T310 | STO G         |  |  |
| T311 | RCL F         |  |  |
| T312 | SIN           |  |  |
| T313 | RCL× A        |  |  |
| T314 | RCL× B        |  |  |
| T315 | 2             |  |  |
| T316 | ÷             |  |  |
| T317 | STO H         |  |  |
| T318 | SOLUTION 1    |  |  |
| T319 | PSE           |  |  |
| T320 | ANGLE 2=      |  |  |
| T321 | PSE           |  |  |
| T322 | RCL E         |  |  |
| T323 | STOP          |  |  |
| T324 | ANGLE 3=      |  |  |
| T325 | PSE           |  |  |
| T326 | RCL F         |  |  |
| T327 | STOP          |  |  |
| T328 | SIDE 3=       |  |  |
| T329 | PSE           |  |  |
| T330 | RCL G         |  |  |
| T331 | STOP          |  |  |
| T332 | AREA=         |  |  |

|      |            |  |  |
|------|------------|--|--|
| T333 | PSE        |  |  |
| T334 | RCL H      |  |  |
| T335 | STOP       |  |  |
| T336 | 180        |  |  |
| T337 | RCL- E     |  |  |
| T338 | STO E      |  |  |
| T339 | 180        |  |  |
| T340 | x<>y       |  |  |
| T341 | -          |  |  |
| T342 | RCL- C     |  |  |
| T343 | STO F      |  |  |
| T344 | SIN        |  |  |
| T345 | RCL× A     |  |  |
| T346 | RCL C      |  |  |
| T347 | SIN        |  |  |
| T348 | ÷          |  |  |
| T349 | STO G      |  |  |
| T350 | RCL F      |  |  |
| T351 | SIN        |  |  |
| T352 | RCL× A     |  |  |
| T353 | RCL× B     |  |  |
| T354 | 2          |  |  |
| T355 | ÷          |  |  |
| T356 | STO H      |  |  |
| T357 | SOLUTION 2 |  |  |
| T358 | PSE        |  |  |
| T359 | ANGLE 2=   |  |  |
| T360 | PSE        |  |  |
| T361 | RCL E      |  |  |
| T362 | STOP       |  |  |
| T363 | ANGLE 3=   |  |  |
| T364 | PSE        |  |  |
| T365 | RCL F      |  |  |
| T366 | STOP       |  |  |
| T367 | SIDE 3=    |  |  |
| T368 | PSE        |  |  |
| T369 | RCL G      |  |  |
| T370 | STOP       |  |  |
| T371 | AREA=      |  |  |
| T372 | PSE        |  |  |
| T373 | RCL H      |  |  |
| T374 | STOP       |  |  |
| T375 | FS? 1      |  |  |
| T376 | CF 10      |  |  |
| T377 | RTN        |  |  |