Basic Mathematics

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40355 REM
40360 REM     >>> ARC-SINE ROUTINE <<<
40365 REM

40075 ZL# = ZO#:  ZJ# = ZL#:  ZK# = 0
40080 IF ZJ# <> ZK# THEN ZK# = ZJ#:  ZJ# = (ZJ# + ZL# / ZK#) / 2:   GOTO 40080
40085 RETURN
40370 ZD# = 0.7071067811865475:  ZE# = -ZD#
40375 ZG# = 1.570796326794896
40380 IF ZO# > ZD# THEN ZT% = 1:  GOTO 40395
40385 IF ZO# => ZE# THEN ZT% = 0:  GOTO 40405
40390 ZT% = -1
40395 ZO# = 1 - ZO# * ZO#:  GOSUB 40075
40400 ZO# = ZJ#
40405 ZP% = 0:  ZQ% = 1:  ZR% = -1
40410 ZL# = ZO#:  ZJ# = ZO#:  ZK# = ZO# * ZO#
40415 ZP% = ZP% + 2:  ZQ% = ZQ% + 2:  ZR% = ZR% + 2
40420 ZL# = ZL# * ZK# * ZR% * ZR% / (ZP% * ZQ%)
40425 IF ZL# <> 0 THEN ZJ# = ZJ# + ZL#:  GOTO 40415
40430 IF ZT% <> 0 THEN ZJ# = (ZG# - ZJ#) * ZT%
40435 ZJ# = ZJ# * 57.29577951308232:  RETURN
40440 REM
40445 REM     >>> ARC-COSINE ROUTINE <<<
40450 REM
40455 GOSUB 40370
40460 ZJ# = 90 - ZJ#:  RETURN
```

Sub-routines for computing an angle in double precision from its sine and/or cosine are listed in Figure 1.

The argument in either case must be ZO#. The computed angle in degrees and decimal degrees, will be in ZJ#.