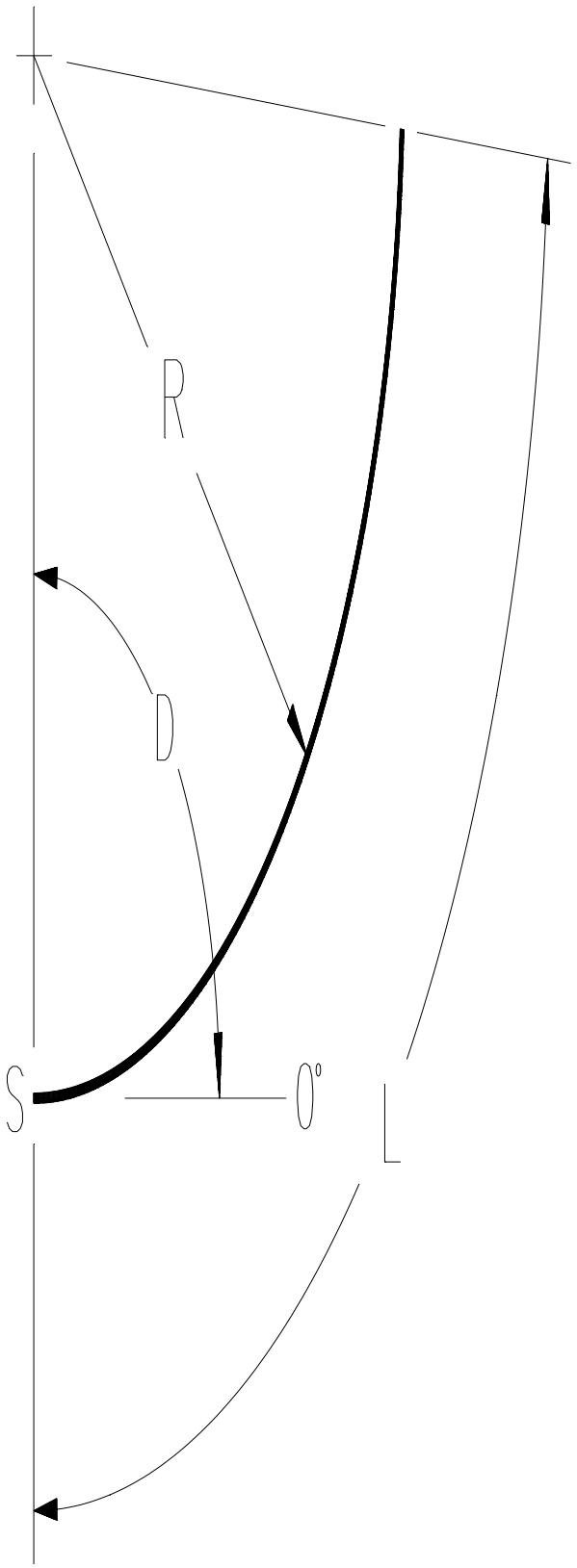
R
D
S
0°
L

ARCL.LSP (ARC BY LENGTH)

ARCL.LSP draws an ARC given only the arc's **Length** (measured along the arc not cord length) & Radius. The arc's center point and angle to center are also needed to position & orient the arc.

The example is an "ARC" that is 3.000 long with 2.000 radius, starting at 0,0 with an angle to center of 90 degrees (not to scale).

The example was created like this:
Command: **(load "arcl")**

Command: **ARCL**
Length of arc: **3.0**
Start of arc: **0.0**
Radius: **2.0**
Angle to center: **90**

AutoLISP code: (text after semicolons are for description only)

```
(Defun C:ARCL (/ L S R D A C) ;DEFine FUNction, declare all variables local
(setvar "cmdecho" 0)                    ;turn off command echoing
(setq L (getreal "\nLength of arc: "))  ;prompt for arc length
(setq S (getpoint "\nStart of arc: "))  ;prompt for start of arc
(setq R (getdist S "\nRadius: "))       ;prompt for radius
(setq D (getangle S "\nAngle to center: "))     ;prompt for angle to center
(setq A (/ (* (/ 180.0 pi) L) R))       ;calculate included angle (see below)
(setq C (polar S D R))                  ;center pt, polar from Start, angle D,
dist. R
(command "ARC" S "C" C "A" A)           ;draw arc "Start,Center,Angle"
(setvar "cmdecho" 1)                    ;turn command echoing back on
(princ)                                 ;exit quietly, without nil
)                                       ;end Defun
```

This function is based on the following formula:

Circumference = 2 x pi x r
Length of arc = 2 x pi x r x (angle/360)
Included Angle = (360 / 2 x pi x r) / length
Included Angle = (180 / pi x r) / length
Included Angle = (180 / pi) x (length / radius)

This function is very handy since AutoCAD's ARC command cannot draw an arc given the ARC's length (but given that, one can always find the included angle). I use this frequently since we manufacture sheet steel components and often know the "Blank length" or "Arc length". The applications that could use this are endless. I hope you find it useful.