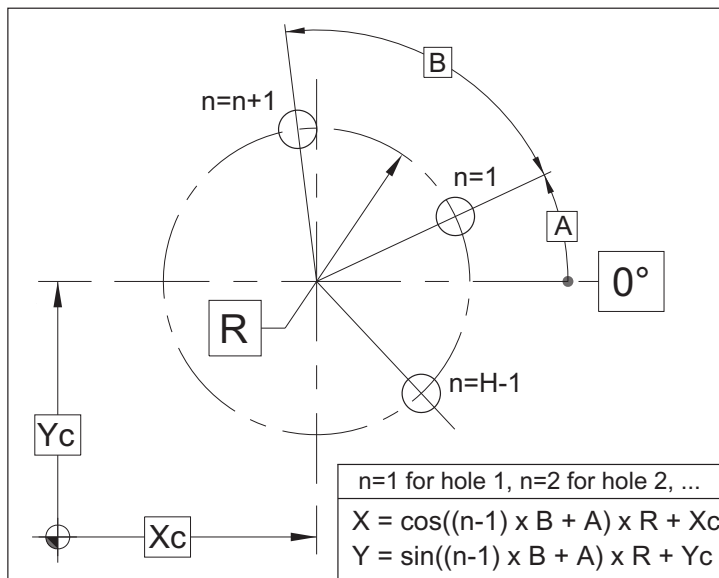


Bolt Hole Pattern - Rotated

Although all basic bolt circle dimensions are the same as for the 27-03 project, the 10 degree pattern rotation makes this project a little more difficult. The best approach is to calculate each hole locations using the *same* formula as in 27-03, just replacing the angular input data for each hole. This may not be a common method, yet it is the most efficient one.

The distance from part zero to bolt circle center is zero (X_c and Y_c). Other given data:

$$R = 65/2 = 32.5 \quad A = 10 \quad B = 360/6 = 60 \quad H = 6 \quad n = 1 \text{ (for the first hole only)}$$



- **Hole A:**
 $X = \cos(0 \times 60 + 10) \times 32.5 + 0 = X32.006$
 $Y = \sin(0 \times 60 + 10) \times 32.5 + 0 = Y5.644$
- **Hole B:**
 $X = \cos(1 \times 60 + 10) \times 32.5 + 0 = X11.116$
 $Y = \sin(1 \times 60 + 10) \times 32.5 + 0 = Y30.540$
- **Hole C:**
 $X = \cos(2 \times 60 + 10) \times 32.5 + 0 = X-20.891$
 $Y = \sin(2 \times 60 + 10) \times 32.5 + 0 = Y24.896$
- **Hole D:**
 $X = \cos(3 \times 60 + 10) \times 32.5 + 0 = X-32.006$
 $Y = \sin(3 \times 60 + 10) \times 32.5 + 0 = Y-5.644$
- **Hole E:**
 $X = \cos(4 \times 60 + 10) \times 32.5 + 0 = X-11.116$
 $Y = \sin(4 \times 60 + 10) \times 32.5 + 0 = Y-30.540$
- **Hole F:**
 $X = \cos(5 \times 60 + 10) \times 32.5 + 0 = X20.891$
 $Y = \sin(5 \times 60 + 10) \times 32.5 + 0 = Y-24.896$

Hole	X-axis Coordinate	Y-axis Coordinate
A	X32.006	Y5.644
B	X11.116	Y30.54
C	X-20.891	Y24.896
D	X-32.006	Y-5.644
E	X-11.116	Y-30.54
F	X20.891	Y-24.896

Program Listing

The following program uses all calculations described on the previous page:

```
(27-04.NC)
(BOLT HOLE PATTERN - ROTATED)

(T01 - SPOT DRILL)
N1 G21
N2 G17 G40 G80 T01
N3 M06
N4 G90 G54 G00 X32.006 Y5.644 S1200 M03 T02      (A)
N5 G43 Z10.0 H01 M08
N6 G99 G82 R2.0 Z-3.3 F130.0
N7 X11.116 Y30.54                                (B)
N8 X-20.891 Y24.896                              (C)
N9 X-32.006 Y-5.644                              (D)
N10 X-11.116 Y-30.54                             (E)
N11 X20.891 Y-24.896                             (F)
N12 G80 Z10.0 M09
N13 G28 Z10.0 M05
N14 M01

(T02 - 6 MM DIA DRILL)
N15 T02
N16 M06
N17 G90 G54 G00 X32.006 Y5.644 S1000 M03 T01     (A)
N18 G43 Z10.0 H02 M08
N19 G99 G81 R2.0 Z-13.3 F160.0
N20 X11.116 Y30.54                                (B)
N21 X-20.891 Y24.896                              (C)
N22 X-32.006 Y-5.644                              (D)
N23 X-11.116 Y-30.54                             (E)
N24 X20.891 Y-24.896                             (F)
N25 G80 Z10.0 M09
N26 G28 X16.25 Y-28.146 Z10.0 M05
N27 M30
%
```