

# NKU CSC 480

## Spring 2006

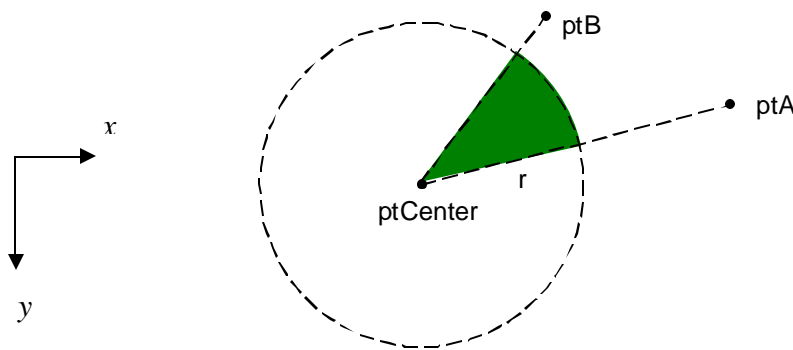
### Programming Assignment 6

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For this assignment you will write a C++ MFC function that draws a filled circular arc using only pixel operations. The interior and the border are the same color. The signature is:

```
void pie( CDC& dc, const CPoint& ptCenter, int r, const CPoint& ptA, const CPoint& ptB, COLORREF c );
```

This will draw the following arc. Note that the filled area runs *counterclockwise* from ptA to ptB.



#### Restrictions:

1. Your code should be efficient and use all-integer arithmetic. Use the Bresenham algorithm for the lines, the midpoint algorithm for the circle, and a scan-line based algorithm for filling.
2. The **only** output function you call should be **scanlineFill()**, defined precisely as follows:

```
void scanlineFill( CDC& dc, int xLeft, int xRight, int y, COLORREF c )
{
    for ( int x= xLeft ; x <= xRight ; ++x )
        dc.SetPixel( x, y, c );
}
```

#### Relaxations:

To avoid unenlightening busy-work, you may assume that the arcs will all be less than 90 degrees and all be on the upper right quadrant of the circle, as displayed. You must place appropriate assertions in your code to ensure this.

You can test your function within a little MFC program using the **MFC\_Framework.h** header.

**DUE: By Friday May 5.** Submit your program in a single file named **Pie\_\_\*.cpp**, with your last name replacing \*. No late assignments will be accepted. As always, programs are graded on design and style as well as nominal correctness and visual aesthetics. Start early, work incrementally, test as you go.