

SlopeFromAngle

Calculate slope given an angle

#include <ToolUtils.h>

Toolbox Utilities

Fixed **SlopeFromAngle**(*theAngle*); /* dh/dv */
short *theAngle* ; in degrees; ranging from -180 to +180
returns the line slope (dh/dv) as a 32-bit Fixed

Given the angle of a line, this calculates the slope of that line. The slope is the dh/dv ratio-the horizontal change divided by the vertical change-between any two points on the line.

theAngle is an angle expressed in circular degrees (as opposed to the "angles" used in arc drawing). This parameter is treated MOD 180, with a range of -180 to +180; positive values are clockwise from vertical and negative values are counterclockwise.

Returns: a 4-byte Fixed value. It's the dh/dv ratio of points on *theAngle* that can be used in mathematical calculations; e.g., to extrapolate additional points on a line.

Notes: The following example uses slope calculations to draw a line extending from (100,100) at a 17° angle until it reaches row 50:

Example

```
#include <ToolUtils.h>
#define INT2FIX(i) ((long) i << 16 )        /* short to Fixed conversion macro */

Fixed        theSlope;
Point        startPt, endPt;
short        dh, dv;

startPt.h=100; startPt.v=100;                /* one end point */
endPt.v = 50;                                /* vertical coordinate of other end */

theSlope = SlopeFromAngle( 17 );        /* get slope of 17° angle */

/* ----- calculate dv and dh; the vertical and horizontal distance */
dv = startPt.v - endPt.v;                    /* vertical is easy */
dh = FixRound( FixMul( INT2FIX(dv), theSlope ) );

MoveTo( startPt.h, startPt.v );                /* move to start point */
Line( dh,dv );                                /* draw calculated distance */
```