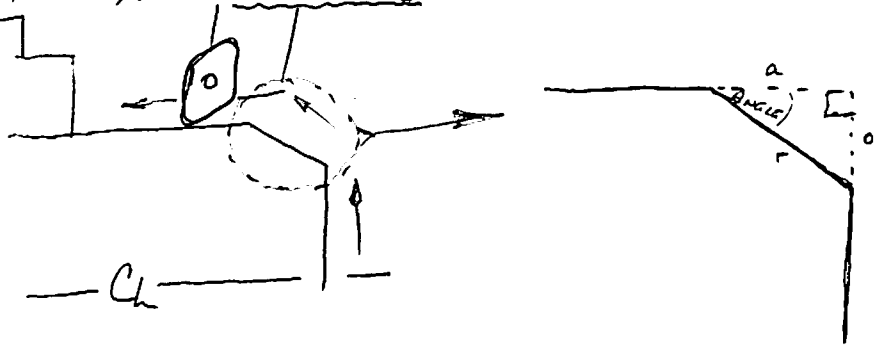


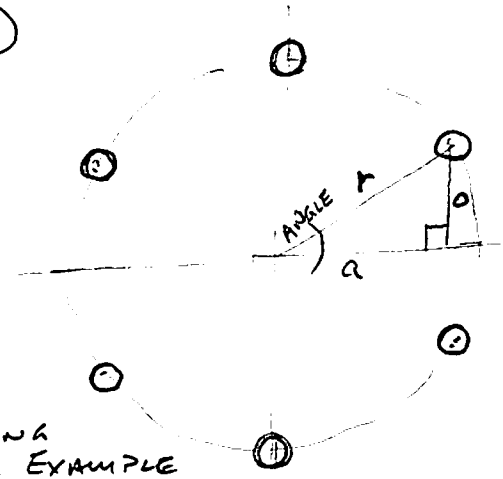
RIGHT ANGLE TRIGONOMETRY WHETHER YOU ARE TRYING TO PROGRAM A CHAMFER IN A

LATHE OR DETERMINE THE LOCATION OF THE HOLES OF A BOLT PATTERN IN A MACHINING CENTER, TRIGONOMETRY REARS ITS UGLY HEAD. HERE'S HOW TO MAKE IT WORK FOR YOU:

① FIRST, LET'S VISUALIZE WHERE TRIANGLES ARE (IN THE ABOVE EXAMPLES)



LATHE EXAMPLE

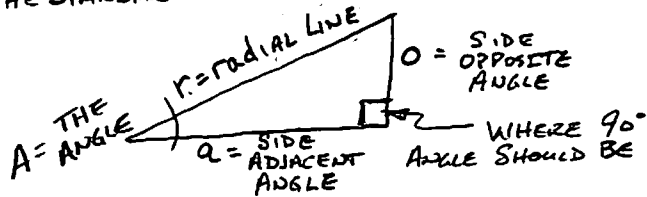


MACHINING CENTER EXAMPLE

② NEXT, LET'S MAKE SURE WE UNDERSTAND TRIGONOMETRY - E-ESE:

- THE STANDARD TRIGONOMETRY TRIANGLE ORIENTATION

- THE TRIG FORMULAS (ALL 3)



① OF THE SIDE ANGLE = $\frac{(O) \text{ SIDE OPPOSITE}}{(r) \text{ RADIAL LINE}}$

② OF THE COSINE ANGLE = $\frac{(A) \text{ SIDE ADJACENT}}{(r) \text{ RADIAL LINE}}$

③ OF THE TANGENT ANGLE = $\frac{(O) \text{ SIDE OPPOSITE}}{(A) \text{ SIDE ADJACENT}}$

③ ALSO, LET'S UNDERSTAND THE "COMMUNITIVE PROPERTY OF MULTIPLICATION": SEE THESE (3) FORMULAS ?

THEY ALL WORK JUST LIKE THIS: SUBSTITUTE FORMULA POSITIONS WITH NUMBERS $\rightarrow 3 = \frac{6}{2}$ (IT READS 3 EQUALS 6 DIVIDED BY 2).

NOW IF YOU KNOW 2 OF THE NUMBERS YOU CAN ALWAYS FIND THE THIRD. I.E: 6 DIVIDED BY WHAT = 3

I.E: 2 TIMES WHAT = 6

④ FINALLY, AS YOU VISUALIZE TRIANGLES IN YOUR WORK PIECE, YOU ARE LOOKING FOR ANY KNOWN VALUES SUCH AS:

VALUE IN DISTANCE OF SIDES OPPOSITE, ADJACENT, OR THE RADIAL LINE; VALUE IN DEGREES OF THE ANGLE -

NOTE: TRIGONOMETRIC FUNCTIONS OF THE ANGLE ARE CONSTANT DECIMAL VALUES & COME FROM YOUR CALCULATOR.

PLUG VALUES INTO FORMULA WHICH BEST FITS AVAILABLE KNOWN VALUES & SOLVE.