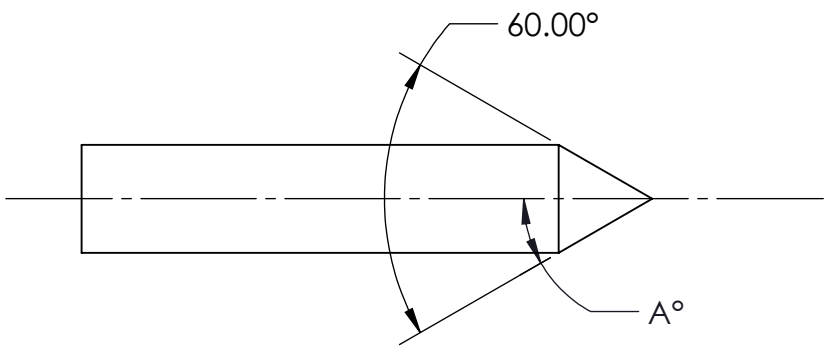
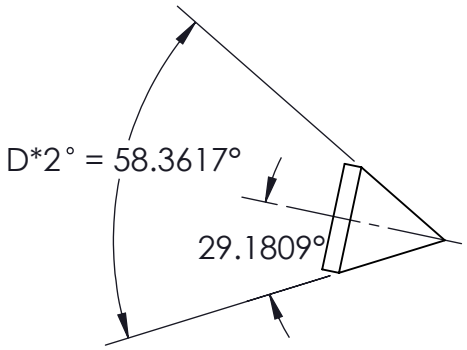
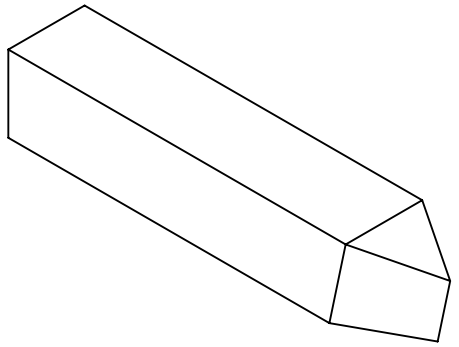
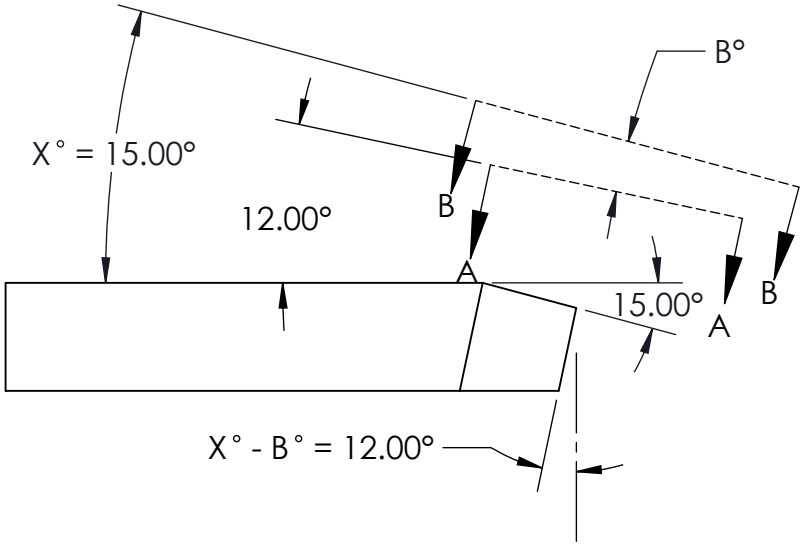






SECTION A-A



FORMULA:

TAN C = TAN A*COS X

$$\text{TAN D} = \frac{\text{TAN C}}{\text{COS B}}$$

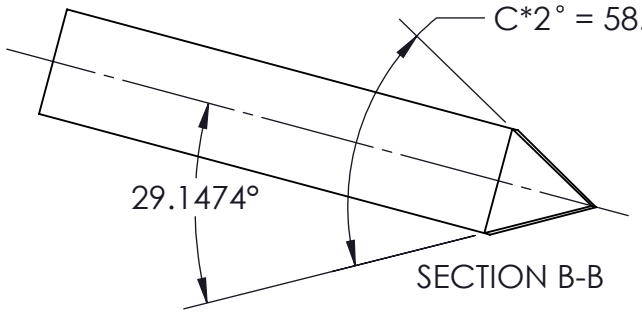
A = 30°
B =3°

C = 29.147°

D = 29.1809°

NOTES:

1. IN THIS EXAMPLE A 15° IS FIRST GROUND ON THE THREAD TOOL.
2. A MAGNETIC SINE PLATE WOULD BE INCLINED TO AN ANGLE D OF 29.1809° AND THE CUTTING TOOL ROTATED TO A 12° ANGLE ON THE CHUCK OF THE MAG SINE.
3. ALTERNATIVELY, A 29.1809° ANGLE IS DRESSED ON THE GRINDING WHEEL AND THE CUTTING TOOL IS ROTATED TO A 12° ANGLE ON THE MAGNETIC CHUCK OF THE GRINDER.
4. ANGLE C MUST BE CALCULATED FIRST IN ORDER TO CALCULATE ANGLE D.
5. SEE SHEET 2 FOR FORMULA DERIVATION.
6. SIDE CLEARANCE FOR 60° TOOL BITS CAN BE CALCULATED BY DIVIDING FRONT CLEARANCE BY 2; i.e. IF FRONT CLEARANCE IS 12° SIDE CLEARANCE IS APPROXIMATELY 6°



SECTION B-B

	A		Initial Release	NWE	4/15/15	
PART #	REV #	ECN	CHANGE DESCRIPTION	REV. BY	ECN DATE	CHECKED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES FOR BOTH SYSTEMS ARE:

ENGLISH:		METRIC:	
FRACTIONS ± 1/32	DECIMALS .XX ± .01, .XXX ± .002, .XXXX ± .0002	DECIMALS X.X ± 0.1, X.XX ± 0.01	ALL ANGLES .X ± .1°, .XX ± .05°

MATERIAL XXXXX

FINISH 32

DO NOT SCALE DRAWING

DRAWN BY NWE | DATE XX/XX/2015

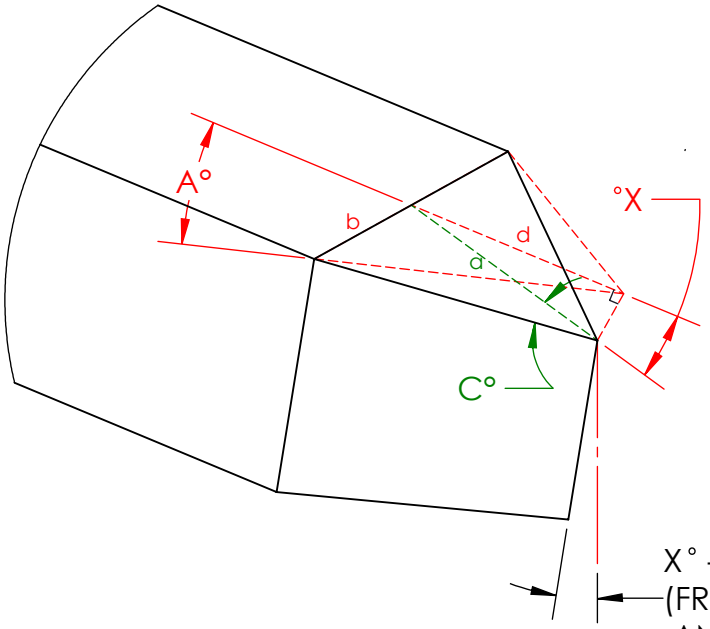
APPROVED | DATE

Raystown Precision Tool
1822 Washington Street
Huntingdon, PA 16652

THREADING TOOL W/RAKE, COMPOUND ANGLE

SIZE A | DWG. NO. RPT2007 | REV. A

SCALE : X/X | FILE: | SHEET 1 OF 2



1. Sketch a plane parallel to the top of part as shown by red construct lines, angle A is given.
2. Draw construction line on angled face as shown in green, angle X is given.
3. Label each line segment appropriately.
4. Common sides must be used to solve to find angle C first.

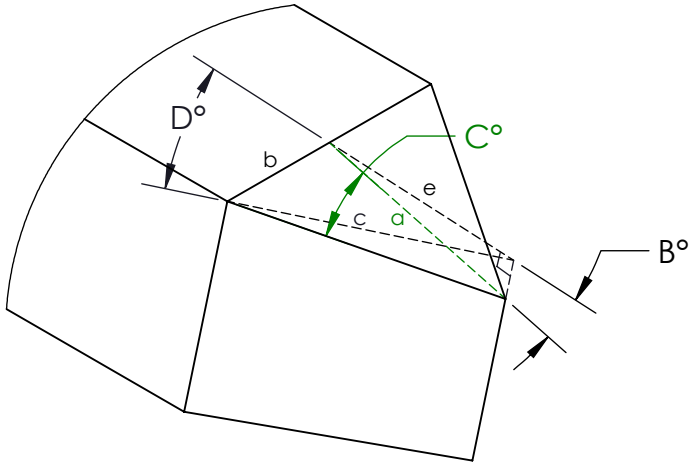
DERIVING THE FORMULAS:

$$\tan C^\circ = \tan A^\circ \cos X$$

$$\tan D^\circ = \frac{\tan C^\circ}{\cos B^\circ}$$

$$\cos X^\circ = d/a$$
$$\tan A^\circ = b/d$$
$$\tan C^\circ = b/a$$

$$\tan C^\circ = b/a = \frac{\tan A^* d}{d/\cos X} = \tan A^* \cos X$$



5. Once angle C is found, construct a plane perpendicular to the front clearance angle shown by *bec*.
6. Label each line segment as shown and find angle B by subtracting front clearance angle from angle X.
7. Solve for angle D to find compound angle as viewed on the plane of the front clearance angle.

$$\cos B = e/a$$

$$\tan D^\circ = b/e = \frac{\tan C^* a}{a^* \cos B} = \frac{\tan C}{\cos B}$$

	A		Initial Release	NWE	4/15/15	
PART #	REV #	ECN	CHANGE DESCRIPTION	REV. BY	ECN DATE	CHECKED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES FOR BOTH SYSTEMS ARE:

ENGLISH:		METRIC:	
FRACTIONS	DECIMALS	DECIMALS	ALL ANGLES
± 1/32	.XX ± .01 .XXX ± .002 .XXXX ± .0002	X.X ± 0.1 X.XX ± 0.01	.X ± .1° .XX ± .05°

MATERIAL XXXXX

FINISH √ 32

DO NOT SCALE DRAWING

DRAWN BY	DATE
NWE	XX/XX/2015
APPROVED	DATE

Raystown Precision Tool
1822 Washington Street
Huntingdon, PA 16652

THREADING TOOL W/RAKE, COMPOUND ANGLE

SIZE	DWG. NO.	REV.
A	RPT2007	A

SCALE : X/X | FILE: | SHEET 2 OF 2