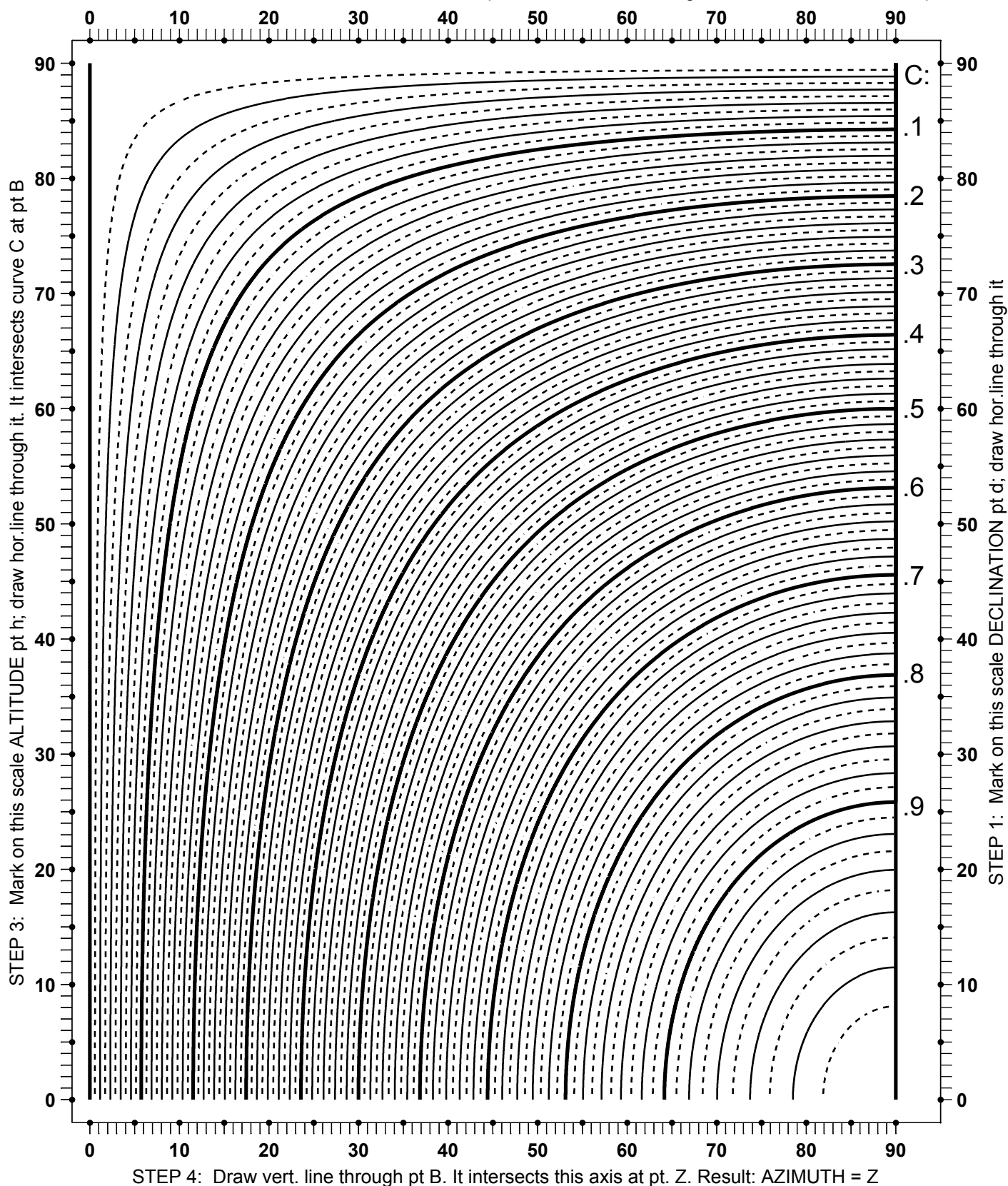


## ★ LINE OF POSITION (HAVERSINE METHOD) ★

For haversine table lookup: if angle is greater than 180°, use angle = 360° - angle; if angle < 0, use angle = |angle|

B		assumed latitude, copy from page 1
Dec		copy from page 1
<b>(diff)</b> =  B  -  Dec		
<b>(aggr)</b> =  B  +  Dec		
SAME NAME (Assumed Latitude and Declination)		
$n = \text{hav}(\text{diff})$		
$m = \text{hav}(\text{aggr})$		
CONTRARY NAME (Assumed Latitude and Declination)		
$n = \text{hav}(\text{aggr})$		
$m = \text{hav}(\text{diff})$		
$q = n + m$		
$a = \text{hav}(LHA)$		
$\text{hav}(ZD) = n + (1 - q) * a$		
	89° 60'	
ZD		inverse haversine - lookup in the tables
<b>Hc</b>		90° - ZD
$H_1 = Ho \text{ or } Hc$		whichever is larger
$H_2 = Ho \text{ or } Hc$		whichever is smaller
<b>Intercept</b> ( $H_1 - H_2$ )		TOWARD if $Ho > Hc$ ; AWAY if $Ho < Hc$
	89° 60'	
Dec		copy
<b>agmt</b>		if SAME name agmt = 90° -  Dec  if CONTRARY name agmt = 90° +  Dec
$a = \text{hav}(\text{agmt})$		
<b>B</b>		copy (from page 1)
<b>Hc</b>		copy from page 1
$B + Hc$		
$m = \text{hav}(B + Hc)$		
$B - Hc$		
$n = \text{hav}(B - Hc)$		
$q = n + m$		
$\text{hav}(Z) = (a - n) / (1 - q)$		
Z		inverse haversine - lookup in the tables
<b>Zn</b>		if Latitude N: if LHA > 180°, Zn = Z if LHA < 180°, Zn = 360° - Z if Latitude S: if LHA > 180°, Zn = 180° - Z if LHA < 180°, Zn = 180° + Z

STEP 2: Mark on this scale LOCAL HOUR ANGLE pt t; draw vert.line through it. It intersects curve C at pt A



## Azimuth by Graphical Method