

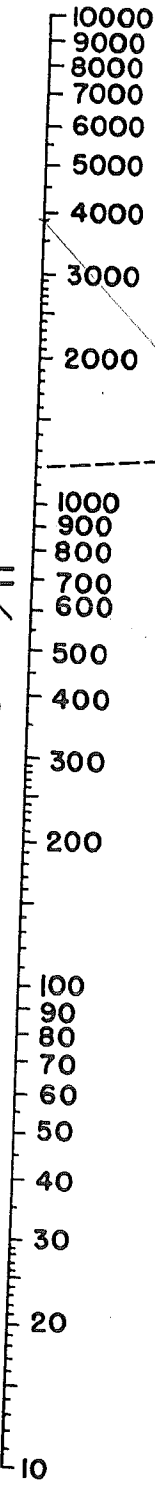
EQUATION:  $Q = 0.56 \left(\frac{z}{n}\right) s^{1/2} y^{3/2} \Rightarrow y = \left[ \frac{Qn}{0.56 z s^{1/2}} \right]^{2/3}$

Z=RECIPROCAL OF TRANSVERSE SLOPE  
 n=COEFFICIENT OF ROUGHNESS IN MANNING'S FORMULA  
 S=GRADE OF CHANNEL IN FT./FT.  
 y=DEPTH AT CURB OR DEEPEST POINT IN FT.

EXAMPLE (SEE DASHED LINES)

GIVEN:  $S=0.03$   
 $Z=24$   
 $n=.02$  }  $Z/n=1200$   
 $Q=2.0$  CFS  
 FIND:  $y=0.22$

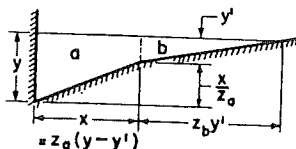
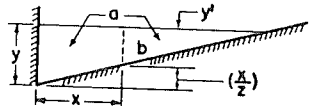
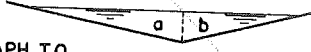
RATIO  $z/n$



TURNING LINE

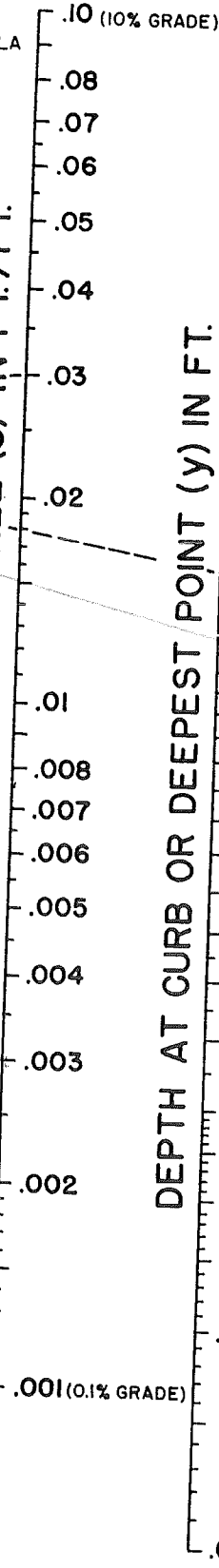
INSTRUCTIONS

1. CONNECT  $z/n$  RATIO WITH SLOPE (S) AND CONNECT DISCHARGE (Q) WITH DEPTH (y). THESE TWO LINES MUST INTERSECT AT TURNING LINE FOR COMPLETE SOLUTION.
2. FOR SHALLOW V-SHAPED CHANNEL AS SHOWN USE NOMOGRAPH TO DETERMINE DISCHARGE IN SECTIONS a AND b SEPARATELY. THEN  $Q_T = Q_a + Q_b$
3. TO DETERMINE DISCHARGE  $Q_x$  IN PORTION OF CHANNEL HAVING WIDTH  $x$ , DETERMINE DEPTH  $y$  FOR TOTAL DISCHARGE IN ENTIRE SECTION a. THEN USE NOMOGRAPH TO DETERMINE  $Q_b$  IN SECTION b FOR DEPTH  $y' = y - (x/z)$
4. TO DETERMINE DISCHARGE IN COMPOSITE SECTION - FOLLOW INSTRUCTION 3. TO OBTAIN DISCHARGE IN SECTION a AT ASSUMED DEPTH  $y$ ; OBTAIN  $Q_b$  FOR SLOPE RATIO  $Z_b$  AND DEPTH  $y'$ . THEN  $Q_T = Q_a + Q_b$



DISCHARGE (Q) IN CFS  
 GRADE OF CHANNEL (S) IN FT./FT.

DEPTH AT CURB OR DEEPEST POINT (y) IN FT.



$Q = 1.13$  cfs  
 $S = 0.003$  ft./ft.  
 $Z = 1/.02 = 50$   
 $n = 0.013$   
 $y = 0.18'$

NOMOGRAPH FOR FLOW IN TRIANGULAR CHANNELS

Nomograph A