CR 343 (6)

SLOPE STAKES

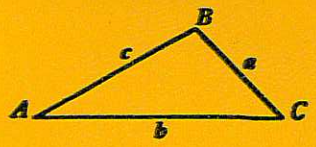
TELEDYNE POST

1976

COLLEGE
FIELD BOOK

48QC-05B

FORMULAE FOR SOLVING RIGHT TRIANGLES



$$\text{Sin}\,A = \frac{a}{c} = \text{Cos}\,B \quad , \text{Cot}\,A = \frac{b}{a} = \text{Tag}\,B$$

$$\text{Cos}\,A = \frac{b}{c} = \text{Sin}\,B \qquad \text{Sec}\,A = \frac{c}{b} = \text{Cosec}\,B$$

$$\text{Tan}\,A = \frac{a}{b} = \text{Cot}\,B \qquad \text{Cosec}\,A = \frac{c}{a} = \text{Sec}\,B$$

Given	Required	Solution
A, c	B, a, b	$B = 90° - A, a = C \sin A, b = C \cos A.$
A, b	B, a, c	$B = 90° - A, a = b \tan A, C = \frac{b}{\cos A}.$
A, a	B, b, c	$B = 90° - A, b = a \cot A, C = \frac{a}{\sin A}.$
a, c	A, B, b	$\sin A = \frac{a}{c}, \cos B = \frac{a}{c}, b = \sqrt{(c+a)(c-a)}$
a, b	A, B, c	$\tan A = \frac{a}{b}, \cot B = \frac{a}{b}, c = \sqrt{a^2 + b^2}$

FORMULAE FOR SOLVING OBLIQUE TRIANGLES

Given	Required	Solution
A, a, b	B, c	$\sin B = \frac{b \sin A}{a}, c = \frac{a \sin C}{\sin A}$
A, B, a	b	$b = \frac{a \sin B}{\sin A}$
a, b, C	A, c	$A + B = 180° - C, C = \frac{a \sin C}{\sin A}$
a, b, c	Area	side $\frac{a+b+c}{2}$, area $= \sqrt{s(s-a)(s-b)(s-c)}$
A, b, c	Area	area $= \frac{bc \sin A}{2}$
A, B, C, a	Area	area $= \frac{a^2 \sin B \sin C}{2 \sin A}$

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STATION	+	ELEV	LT − RT	LT ELEV	RT
238+00					
237+00					
236+00					
235+00	8 01	62 43	3 54	54 42	235+74.3 MH 16.2'
234+00					
*233+00					
232+00					
231+00			6 2	51 1	
	664	57 96		4451 32	BM

DITCH	SHOULDER	℄ ELEV.	SHOULDER	DITCH
C0 4 56 0	(6 0) F2 5 58 2	4459 2	(5 9) F2 3 58 2	C1 1 55 5
C1 7 53 8	(-6 0) F2 5 58 0	4458 3	(-6 6) F2 7 58 0	C0 8 55 0
C1 3 53 7	(-7 4) F2 1 57 1	4457 4	(-7 5) F2 2 57 1	C0 9 54 0
C0 3 53 6	(-4 4) F2 0 55 2	4456 2	(-3 6) F1 6 55 2	C0 7 53 6
C0 3 52 7	(-5 0) F1 7 54 7	4455 0	(-4 4) F1 1 54 7	C0 3 53 3
C0 3 51 6	(6 1) F2 8 54 7	4455 0	(-5 0) F1 7 54 7	
C0 3 51 3	(6 4) F3 1 54 7	4455 0	(5 4) F2 1 54 7	
50 3	52 6	4452 9	52 6	

STA.	+	ELEV.	—	ELEV.	
246+00					
245+00					
244+00	7 85	71 52	1 65	63 57	
*243+00					
242+00					
241+00					
240+00					
	6 63	44 65 22	3 84	44 58 59	P. POLE R. SPIKE
239+00					
		44 62 43			

(75) 5

DITCH	SHOULDER	℄ ELEV	SHOULDER	DITCH
C1 2 / 64 1	(62) F0 6 / 65 9	44 66 2	(63) F0 7 / 65 9	C1 6 / 63 6
C1 2 / 63 2	(74) F0 6 / 65 0	44 65 3	(74) F0 6 / 65 0	C2 2 / 62 2
C1 6 / 61 0	(76) F1 5 / 64 1	44 64 4	(32) F2 6 / 64 1	C0 5 / 61 0
C0 4 / 60 4	(44) F2 5 / 63 3	44 63 4	*(32) F2 0 / 63 3	C0 8 / 60 5
C0 3 / 59 4	(59) F2 7 / 62 4	44 62 7	(59) F2 2 / 62 4	C2 2 / 58 0
C0 4 / 58 8	(69) F2 3 / 61 5	44 61 8	(59) F2 2 / 61 5	C1 5 / 57 8
C0 2 / 58 4	(66) F2 0 / 60 6	44 60 9	(74) F2 8 / 60 6	C0 3 / 57 5
C0 5 / 57 9	(42) F2 7 / 59 7	44 60 0	(59) F2 7 / 59 7	C1 0 / 56 0

STA.	+	ELEV	—	ELEV.	
254+00			2.5	71.2	
253+00			3.6	70.8	
252+00			4.5	69.2	
251+00			5.1	69.3	
250+00			5.7	68.7	
249+00	5.30	447488			
248+00					
247+00			2.53	4468.99	SPIKE ON P. POLE 4469.08
		447152			

DITCH	SHOULDER & ELEV		SHOULDER	DITCH
	(38) F1.6 72.2	4472.5	28 F0.6 72.2	
	51 F1.8 71.1	4471.9	38 F0.5 71.1	
	(58) F1.6 4470.2	4470.5	(48) F0.6 4470.2	
	(59) F1.1 69.6	4469.9	52 F0.9 69.6	
	(75) F2.4 69.3	4470.3	(64) F0.7 70.9	
C0.5 65.9	(54) F2.1 68.5	4468.8	(45) F1.5 68.5	C1.5 65.5
C0.4 65.3	(58) F2.3 68.9	4468.3	(47) F1.2 68.9	C1.7 65.1
C0.6 64.9	(60) F2.0 67.5	4467.8	(54) F1.1 67.5	C1.4 65.0

STA.	+	ELEV.	−	ELEV		DITCH	SHOULDER	℄ ELEV	SHOULDER	DITCH
			2 22	4477 56	BM P. POLE EAST SIDE OF 6th WEST					
257+81 85										
257+00			4 4	75 4			5 2 F0 2 75 7	4476°	(5 3) F1 3 75 7	
256+00			4 8	4475 4			(5 2) F1 4 75 3	4475 6	(5 2) F1 3 75 3	
	8 29	4479 78 2 22 0	2 89	4471 49						
255+06			0 8	73 6			(2°) F1 5 73 9	4474 2	(1 7) F1 2 73 9	
		4474 38								

RIGHT 5^{3}

LEFT 4^{6}

4479 $\underline{78}$