

Solutions sheet No. 129		Mixed Sine and Cosine Rules - Find an Angle 3 (degrees & minutes)						
Working using $a\sin A = b\sin B$ or $\cos A = \frac{b^2 + c^2 - a^2}{2bc}$								
No.	a	b	c	A	Equation	Calculator	Degrees	Solution
1	6	8		75°18'	$\sin a^\circ = (6\sin 75^\circ 18')/8$	46.506363	46°30'	$a^\circ = 46^\circ 30'$
2	16	10	14		$\cos b^\circ = (10^2 + 14^2 - 16^2)/(2 \times 10 \times 14)$	81.786789	81°47'	$b^\circ = 81^\circ 47'$
3	12	14	16		$\cos c^\circ = (14^2 + 16^2 - 12^2)/(2 \times 14 \times 16)$	46.567463	46°34'	$c^\circ = 46^\circ 34'$
4	25	40		83°31'	$\sin d^\circ = (25\sin 83^\circ 31')/40$	38.389413	38°23'	$d^\circ = 38^\circ 23'$
5	29	30		52°45'	$\sin e^\circ = (29\sin 52^\circ 45')/30$	50.306194	50°18'	$e^\circ = 50^\circ 18'$
6	67	77		61°15'	$\sin f^\circ = (67\sin 61^\circ 15')/77$	49.717526	49°43'	$f^\circ = 49^\circ 43'$
7	63	85	90		$\cos g^\circ = (85^2 + 90^2 - 63^2)/(2 \times 85 \times 90)$	42.07894	42°5'	$g^\circ = 42^\circ 5'$
8	46	37	48		$\cos h^\circ = (37^2 + 48^2 - 46^2)/(2 \times 37 \times 48)$	64.001693	64°0'	$h^\circ = 64^\circ 0'$
9	85	105		77°25'	$\sin i^\circ = (85\sin 77^\circ 25')/105$	52.192913	52°12'	$i^\circ = 52^\circ 12'$
10	60	40	50		$\cos j^\circ = (40^2 + 50^2 - 60^2)/(2 \times 40 \times 50)$	82.819244	82°49'	$j^\circ = 82^\circ 49'$
11	14	18		77°6'	$\sin k^\circ = (14\sin 77^\circ 6')/18$	49.301165	49°18'	$k^\circ = 49^\circ 18'$
12	12.3	15.1		76°25'	$\sin l^\circ = (12.3\sin 76^\circ 25')/15.1$	52.352684	52°21'	$l^\circ = 52^\circ 21'$
13	32	26	37		$\cos m^\circ = (26^2 + 37^2 - 32^2)/(2 \times 26 \times 37)$	57.949584	57°57'	$m^\circ = 57^\circ 57'$
14	35	36	40		$\cos n^\circ = (36^2 + 40^2 - 35^2)/(2 \times 36 \times 40)$	54.534803	54°32'	$n^\circ = 54^\circ 32'$
15	51	64		73°32'	$\sin p^\circ = (51\sin 73^\circ 32')/64$	49.835075	49°50'	$p^\circ = 49^\circ 50'$
16	12.6	8.7	11.6		$\cos q^\circ = (8.7^2 + 11.6^2 - 12.6^2)/(2 \times 8.7 \times 11.6)$	75.220308	75°13'	$q^\circ = 75^\circ 13'$
17	5.9	7.2	7.5		$\cos r^\circ = (7.2^2 + 7.5^2 - 5.9^2)/(2 \times 7.2 \times 7.5)$	47.272017	47°16'	$r^\circ = 47^\circ 16'$
18	19.3	16.7		41°43'	$\sin s^\circ = (19.3\sin 41^\circ 43')/16.7$	50.268667	50°16'	$s^\circ = 50^\circ 16'$
19	96	115		79°22'	$\sin t^\circ = (96\sin 79^\circ 22')/115$	55.129651	55°8'	$t^\circ = 55^\circ 8'$
20	41	21	34		$\cos u^\circ = (21^2 + 34^2 - 41^2)/(2 \times 21 \times 34)$	93.372287	93°22'	$u^\circ = 93^\circ 22'$