

Solutions sheet No. 128		Mixed Trig Rule - Find an Side 4 (degrees & minutes)								
Working using $a\sin A = b\sin B$ or $a^2 = b^2 + c^2 - 2bccosA^\circ$										
No.	a	b	c	A	B	Equation	Calculator	a^2	a	Solution
1	a	8		39°53'	84°26'	$a = 8\sin 39^\circ 53' / \sin 84^\circ 26'$	5.1541184		$a = 5.154\dots$	$a = 5.2$
2	b	46	55	67°17'		$b^2 = 55^2 + 67^2 - 2 \times 55 \times 67 \times \cos 67^\circ 17'$	3163.9005	$b^2 = 3163.9\dots$	$b = 56.249\dots$	$b = 56.2$
3	c	29	60	48°57'		$c^2 = 60^2 + 48^2 - 2 \times 60 \times 48 \times \cos 48^\circ 57'$	2112.4255	$c^2 = 2112.425\dots$	$c = 45.961\dots$	$c = 46.0$
4	d	81		76°38'	79°36'	$d = 81\sin 76^\circ 38' / \sin 79^\circ 36'$	80.122041		$d = 80.122\dots$	$d = 80.1$
5	e	16	18	88°5'		$e^2 = 18^2 + 88^2 - 2 \times 18 \times 88 \times \cos 88^\circ 5'$	559.89789	$e^2 = 559.898\dots$	$e = 23.662\dots$	$e = 23.7$
6	f	40		44°28'	51°32'	$f = 40\sin 44^\circ 28' / \sin 51^\circ 32'$	35.786506		$f = 35.787\dots$	$f = 35.8$
7	g	100		74°13'	31°48'	$g = 100\sin 74^\circ 13' / \sin 31^\circ 48'$	182.6144		$g = 182.614\dots$	$g = 182.6$
8	h	42	55	65°27'		$h^2 = 55^2 + 65^2 - 2 \times 55 \times 65 \times \cos 65^\circ 27'$	2836.5036	$h^2 = 2836.504\dots$	$h = 53.259\dots$	$h = 53.3$
9	i	24	25	35°26'		$i^2 = 25^2 + 35^2 - 2 \times 25 \times 35 \times \cos 35^\circ 26'$	218.01755	$i^2 = 218.018\dots$	$i = 14.765\dots$	$i = 14.8$
10	j	115		37°30'	74°34'	$j = 115\sin 37^\circ 30' / \sin 74^\circ 34'$	72.626419		$j = 72.626\dots$	$j = 72.6$
11	k	100	125	76°47'		$k^2 = 125^2 + 76^2 - 2 \times 125 \times 76 \times \cos 76^\circ 47'$	19576.953	$k^2 = 19576.953\dots$	$k = 139.918\dots$	$k = 139.9$
12	l	15.6		28°33'	82°49'	$l = 15.6\sin 28^\circ 33' / \sin 82^\circ 49'$	7.514619		$l = 7.515\dots$	$l = 7.5$
13	m	25	28	45°34'		$m^2 = 28^2 + 45^2 - 2 \times 28 \times 45 \times \cos 45^\circ 34'$	419.05051	$m^2 = 419.051\dots$	$m = 20.471\dots$	$m = 20.5$
14	n	115		39°12'	81°49'	$n = 115\sin 39^\circ 12' / \sin 81^\circ 49'$	73.431069		$n = 73.431\dots$	$n = 73.4$
15	p	75		33°38'	75°24'	$p = 75\sin 33^\circ 38' / \sin 75^\circ 24'$	42.926846		$p = 42.927\dots$	$p = 42.9$
16	q	11.4	11.8	32°41'		$q^2 = 11.8^2 + 32^2 - 2 \times 11.8 \times 32 \times \cos 32^\circ 41'$	41.04114	$q^2 = 41.041\dots$	$q = 6.406\dots$	$q = 6.4$
17	r	78		38°14'	80°55'	$r = 78\sin 38^\circ 14' / \sin 80^\circ 55'$	48.884531		$r = 48.885\dots$	$r = 48.9$
18	s	400		58°47'	98°42'	$s = 400\sin 58^\circ 47' / \sin 98^\circ 42'$	346.0673		$s = 346.067\dots$	$s = 346.1$
19	t	14	14	44°19'		$t^2 = 14^2 + 44^2 - 2 \times 14 \times 44 \times \cos 44^\circ 19'$	110.0188	$t^2 = 110.019\dots$	$t = 10.489\dots$	$t = 10.5$
20	u	52	56	46°20'		$u^2 = 56^2 + 46^2 - 2 \times 56 \times 46 \times \cos 46^\circ 20'$	1794.3097	$u^2 = 1794.31\dots$	$u = 42.359\dots$	$u = 42.4$