

Solutions for GeoWorkSheet No. 120

Solutions sheet No. 120				Cosine Rule - Find an Angle 1 (degrees & minutes)				
Working using $\cos A = \frac{b^2 + c^2 - a^2}{2bc}$								
No.	a	b	c	Angle	Equation	Calculator	Degrees	Solution
1	7	11	12	a	$\cos a^\circ = (11^2 + 12^2 - 7^2)/(2 \times 11 \times 12)$	35.096801	$35^\circ 6'$	$a^\circ = 35^\circ 6'$
2	20	16	22	b	$\cos b^\circ = (16^2 + 22^2 - 20^2)/(2 \times 16 \times 22)$	61.121454	$61^\circ 7'$	$b^\circ = 61^\circ 7'$
3	11	13	15	c	$\cos c^\circ = (13^2 + 15^2 - 11^2)/(2 \times 13 \times 15)$	45.572996	$45^\circ 34'$	$c^\circ = 45^\circ 34'$
4	50	75	85	d	$\cos d^\circ = (75^2 + 85^2 - 50^2)/(2 \times 75 \times 85)$	35.731292	$35^\circ 44'$	$d^\circ = 35^\circ 44'$
5	35	40	45	e	$\cos e^\circ = (40^2 + 45^2 - 35^2)/(2 \times 40 \times 45)$	48.189685	$48^\circ 11'$	$e^\circ = 48^\circ 11'$
6	30	54	56	f	$\cos f^\circ = (54^2 + 56^2 - 30^2)/(2 \times 54 \times 56)$	31.586338	$31^\circ 35'$	$f^\circ = 31^\circ 35'$
7	58	80	95	g	$\cos g^\circ = (80^2 + 95^2 - 58^2)/(2 \times 80 \times 95)$	37.487433	$37^\circ 29'$	$g^\circ = 37^\circ 29'$
8	47	36	47	h	$\cos h^\circ = (36^2 + 47^2 - 47^2)/(2 \times 36 \times 47)$	67.481686	$67^\circ 29'$	$h^\circ = 67^\circ 29'$
9	32	25	38	i	$\cos i^\circ = (25^2 + 38^2 - 32^2)/(2 \times 25 \times 38)$	56.632987	$56^\circ 38'$	$i^\circ = 56^\circ 38'$
10	65	50	55	j	$\cos j^\circ = (50^2 + 55^2 - 65^2)/(2 \times 50 \times 55)$	76.327982	$76^\circ 20'$	$j^\circ = 76^\circ 20'$
11	12.5	7.5	9.5	k	$\cos k^\circ = (7.5^2 + 9.5^2 - 12.5^2)/(2 \times 7.5 \times 9.5)$	93.923303	$93^\circ 55'$	$k^\circ = 93^\circ 55'$
12	12	15	16	l	$\cos l^\circ = (15^2 + 16^2 - 12^2)/(2 \times 15 \times 16)$	45.40561	$45^\circ 24'$	$l^\circ = 45^\circ 24'$
13	34	28	38	m	$\cos m^\circ = (28^2 + 38^2 - 34^2)/(2 \times 28 \times 38)$	59.750967	$59^\circ 45'$	$m^\circ = 59^\circ 45'$
14	35	36	37	n	$\cos n^\circ = (36^2 + 37^2 - 35^2)/(2 \times 36 \times 37)$	57.279557	$57^\circ 17'$	$n^\circ = 57^\circ 17'$
15	280	200	230	p	$\cos p^\circ = (200^2 + 230^2 - 280^2)/(2 \times 200 \times 230)$	80.931876	$80^\circ 56'$	$p^\circ = 80^\circ 56'$
16	12.1	8.3	11.4	q	$\cos q^\circ = (8.3^2 + 11.4^2 - 12.1^2)/(2 \times 8.3 \times 11.4)$	73.912297	$73^\circ 55'$	$q^\circ = 73^\circ 55'$
17	6.4	7.3	7.8	r	$\cos r^\circ = (7.3^2 + 7.8^2 - 6.4^2)/(2 \times 7.3 \times 7.8)$	50.020129	$50^\circ 1'$	$r^\circ = 50^\circ 1'$
18	32	21	26	s	$\cos s^\circ = (21^2 + 26^2 - 32^2)/(2 \times 21 \times 26)$	85.114496	$85^\circ 7'$	$s^\circ = 85^\circ 7'$
19	3.7	4.2	5.1	t	$\cos t^\circ = (4.2^2 + 5.1^2 - 3.7^2)/(2 \times 4.2 \times 5.1)$	45.625411	$45^\circ 38'$	$t^\circ = 45^\circ 38'$
20	60	25	45	u	$\cos u^\circ = (25^2 + 45^2 - 60^2)/(2 \times 25 \times 45)$	114.97497	$114^\circ 58'$	$u^\circ = 114^\circ 58'$