

VAJA 9: SFERNA TRIGONOMETRIJA – REŠITVE NALOG

2025/2026

Naloga 1

Reši sferne trikotnike, podane z:

A	$a = 125^{\circ} 13' 14''$ $\alpha = 129^{\circ} 43' 21''$	$b = 53^{\circ} 58' 35''$ $\beta = 49^{\circ} 35' 36''$	$c = 96^{\circ} 7' 54''$ $\gamma = 69^{\circ} 24' 33''$
B	$\alpha = 81^{\circ} 14' 11''$ $a = 79^{\circ} 58' 59''$	$\beta = 93^{\circ} 24' 41''$ $b = 59^{\circ} 56' 40''$	$\gamma = 104^{\circ} 58' 34''$ $c = 105^{\circ} 43' 52''$
C	$b = 120^{\circ} 31' 37''$ $a = 112^{\circ} 15' 8''$	$c = 76^{\circ} 43' 29''$ $\beta = 117^{\circ} 51' 45''$	$\alpha = 108^{\circ} 12' 50''$ $\gamma = 87^{\circ} 19' 11''$
D	$b = 95^{\circ} 1' 22''$ $a = 84^{\circ} 15' 45''$	$\alpha = 87^{\circ} 13' 2''$ $c = 152^{\circ} 54' 34''$	$\gamma = 152^{\circ} 47' 48''$ $\beta = 89^{\circ} 48' 59''$
E	$b = 5^{\circ} 14' 3''$	$c = 38^{\circ} 47' 12''$	$\beta = 48^{\circ} 13' 59''$
Trikotnik ne obstaja.			
F	$b = 55^{\circ} 43' 15''$ $a = 58^{\circ} 8' 28''$	$c = 38^{\circ} 25' 12''$ $\alpha = 80^{\circ} 17' 46''$	$\beta = 73^{\circ} 31' 29''$ $\gamma = 46^{\circ} 9' 5''$
G	$a = 61^{\circ} 3' 37''$ $b_1 = 84^{\circ} 57' 44''$ $b_2 = 30^{\circ} 44' 30''$	$c = 35^{\circ} 57' 22''$ $\alpha_1 = 45^{\circ} 6' 27''$ $\alpha_2 = 134^{\circ} 53' 33''$	$\gamma = 28^{\circ} 22' 49''$ $\beta_1 = 126^{\circ} 15' 19''$ $\beta_2 = 24^{\circ} 26' 38''$
H	$a = 59^{\circ} 33' 17''$	$c = 165^{\circ} 17' 28''$	$\gamma = 45^{\circ} 41' 1''$
Trikotnik ne obstaja.			
I	$c = 81^{\circ} 3' 8''$	$\alpha = 73^{\circ} 20' 40''$	$\gamma = 11^{\circ} 39' 13''$
Trikotnik ne obstaja.			
J	$b = 71^{\circ} 31' 23''$ $a = 168^{\circ} 42' 20''$	$\alpha = 170^{\circ} 0' 5''$ $c = 102^{\circ} 34' 18''$	$\beta = 57^{\circ} 13' 33''$ $\gamma = 59^{\circ} 54' 43''$
K	$b = 22^{\circ} 53' 53''$ $a_1 = 35^{\circ} 49' 39''$ $a_2 = 144^{\circ} 10' 21''$	$\alpha = 89^{\circ} 3' 44''$ $c_1 = 28^{\circ} 44' 22''$ $c_2 = 152^{\circ} 3' 10''$	$\beta = 41^{\circ} 39' 15''$ $\gamma_1 = 55^{\circ} 13' 5''$ $\gamma_2 = 126^{\circ} 49' 4''$
L	$c = 17^{\circ} 52' 1''$	$\beta = 66^{\circ} 30' 14''$	$\gamma = 138^{\circ} 19' 27''$
Trikotnik ne obstaja.			

Naloga 2

Reši pravokotna sferna trikotnika, podana z:

A	$a = 45^{\circ} 45' 47''$	$\alpha = 60^{\circ} 15' 2''$	$\gamma = 90^{\circ} 0' 0''$
	$b_1 = 35^{\circ} 56' 16''$	$c_1 = 55^{\circ} 36' 25''$	$\beta_1 = 45^{\circ} 20' 10''$
	$b_2 = 144^{\circ} 3' 44''$	$c_2 = 124^{\circ} 23' 35''$	$\beta_2 = 134^{\circ} 45' 50''$
B	$a = 61^{\circ} 17' 20''$	$c = 33^{\circ} 22' 39''$	$\beta = 90^{\circ} 0' 0''$
	$b = 66^{\circ} 20' 58''$	$\alpha = 73^{\circ} 13' 50''$	$\gamma = 36^{\circ} 54' 46''$

Naloga 3

Reši pravostranična sferna trikotnika, podana z:

A	$a = 41^{\circ} 43' 13''$	$c = 90^{\circ} 0' 0''$	$\beta = 70^{\circ} 31' 5''$
	$b = 77^{\circ} 10' 35''$	$c = 40^{\circ} 2' 56''$	$\beta = 104^{\circ} 47' 29''$
B	$b = 90^{\circ} 0' 0''$	$c = 123^{\circ} 36' 58''$	$\alpha = 49^{\circ} 11' 8''$
	$a = 57^{\circ} 1' 22''$	$\beta = 64^{\circ} 26' 48''$	$\gamma = 131^{\circ} 17' 46''$

Naloga 4

Iz Ljubljane ($\varphi = 46^{\circ} 5' 30'' S$, $\lambda = 14^{\circ} 32' 15'' V$) letimo v Panama ($\varphi = 8^{\circ} 58' 0'' S$, $\lambda = 79^{\circ} 32' 0'' Z$) po ortodromi, nazaj v Ljubljano pa se vračamo najprej po vzporedniku nato po poldnevniku. Kolikšni sta dolžini poti (v kilometrih) tja in nazaj, če v obeh primerih letimo na višini 7 km. Polmer Zemlje znaša 6371 km.

dolžina poti Ljubljana – Panama: $D = 9612$ km

dolžina poti Panama – Ljubljana: $D = 14\,476$ km