



CAMI Mathematics: Grade 11

GRADE 11 General solutions for Trigonometric equations

11.9 General solutions

1. Calculate the general solutions of the following equations.
(Round all angles off to nearest integer)

(a) $\sin \alpha - 0.242 = 0$

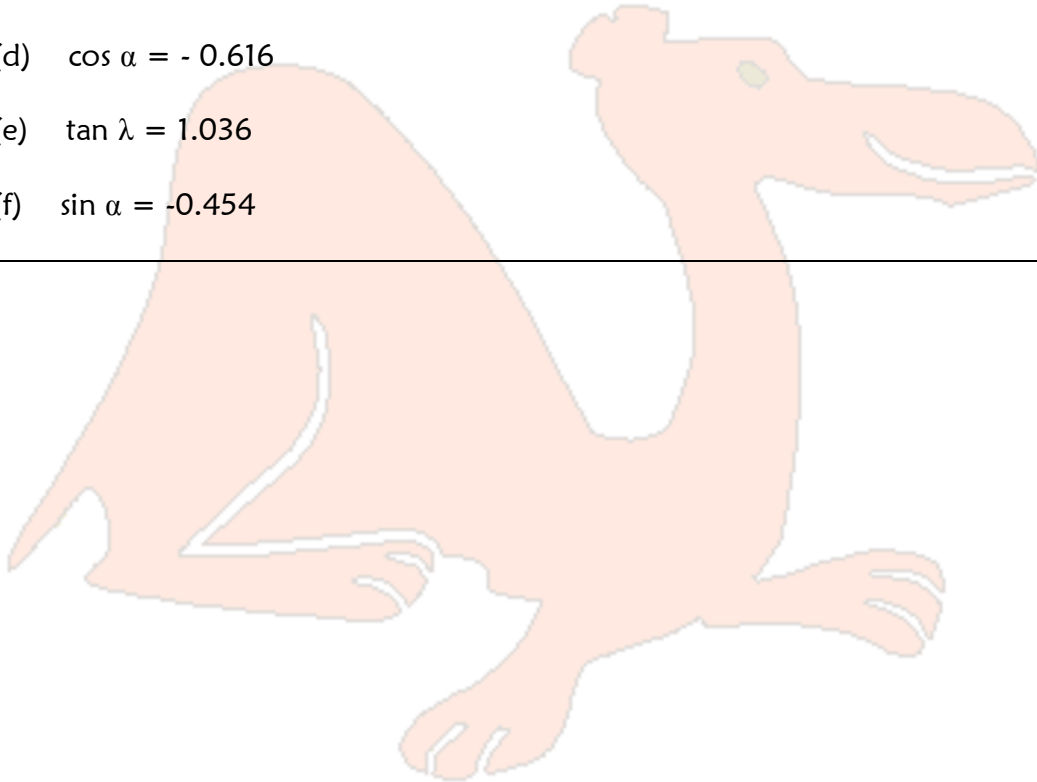
(b) $\tan \beta + 5.145 = 0$

(c) $\cos \lambda - 0.242 = 0$

(d) $\cos \alpha = -0.616$

(e) $\tan \lambda = 1.036$

(f) $\sin \alpha = -0.454$





CAMI Mathematics: Grade 11

MEMO

1. Calculate the general solutions of the following equations. [7.6.8.1]
(Round all angles off to nearest integer)

(a) $\sin \alpha - 0.242 = 0$

$$\sin \alpha = 0.242$$

Reference angle : 14°

\sin is positive in the 1st and 2nd quadrants.

1st : $\alpha = 14^\circ + k.360^\circ$

2nd : $\alpha = 166^\circ + k.360^\circ$

(b) $\tan \beta + 5.145 = 0$

$$\tan \beta = -5.145$$

Reference angle : 79°

\tan is negative in the 2nd and 4th quadrants.

2nd : $\beta = 101^\circ + k.180^\circ$

4th : $\beta = 281^\circ + k.180^\circ$

(c) $\cos \lambda - 0.242 = 0$

$$\cos \lambda = 0.242$$

Reference angle : 76°

\cos is positive in the 1st and 4th quadrants.

1st : $\lambda = 76^\circ + k.360^\circ$

4th : $\lambda = 284^\circ + k.360^\circ$

(d) $\cos \alpha = -0.616$

Reference angle : 52°

\cos is negative in the 2nd and 3rd quadrants.

2nd : $\alpha = 128^\circ + k.360^\circ$

3rd : $\alpha = 232^\circ + k.360^\circ$

(e) $\tan \lambda = 1.036$

Reference angle : 46°

\tan is positive in the 1st and 3rd quadrants.

1st : $\lambda = 46^\circ + k.180^\circ$

3rd : $\lambda = 226^\circ + k.180^\circ$



CAMI Mathematics: Grade 11

- (f) $\sin \alpha = -0.454$
Reference angle : 27°
 \sin is negative in the 3rd and 4th quadrants.
3rd : $\alpha = 207^\circ + k.360^\circ$
4th : $\alpha = 333^\circ + k.360^\circ$

