

Trigonometry



Learn to solve this type of problems, not just this problem!

- (1) Use at least two different approaches to evaluate $(\cos 20^\circ \cos 40^\circ \cos 80^\circ)$.
- (2) Find an acute angle α so that

$$\sqrt{15 - 12 \cos \alpha} + \sqrt{7 - 4\sqrt{3} \sin \alpha} = 4$$

Try to use at least two different approaches.

- (3) If $0 < \alpha < \beta < \frac{\pi}{2}$, explain why $\frac{\cos \beta}{\cos \alpha} < \frac{\beta}{\alpha}$.

- (4) Compute the value of

$$(1 + \tan 1^\circ)(1 + \tan 2^\circ) \cdots (1 + \tan 43^\circ)(1 + \tan 44^\circ)$$

- (5) Compute $(\tan 20^\circ \tan 40^\circ \tan 60^\circ \tan 80^\circ)$.

- (6) Compute the value of $(\sin 1^\circ \sin 2^\circ \cdots \sin 89^\circ)$.