Related Questions with Solutions

Questions

Quetion: 01

If $\dfrac{\cos A}{\cos B} = \dfrac{x}{y}$, where $A \neq B$, then

A. $\dfrac{x \tan A + y \tan B}{x + y} = \tan\left(\dfrac{A + B}{2}\right)$

B. $\dfrac{x \tan A - y \tan B}{x + y} = \tan\left(\dfrac{A - B}{2}\right)$

C. $\dfrac{y \sin A + x \sin B}{y \sin A - x \sin B} = \dfrac{\sin(A + B)}{\sin(A - B)}$

D. $x \cos A + y \cos B = 0$

Solutions

Solution: 01

Given $\dfrac{\cos A}{x} = \dfrac{\cos B}{y} = \lambda$ [say]

[a] $\dfrac{x \tan A + y \tan B}{x + y} = \dfrac{\sin A + \sin B}{\cos A + \cos B} = \tan\left(\dfrac{A + B}{2}\right)$

[b] $\dfrac{x \tan A - y \tan B}{x + y} = \dfrac{\sin A - \sin B}{\cos A + \cos B} = \tan\left(\dfrac{A - B}{2}\right)$

[c] $\dfrac{y \sin A + x \sin B}{y \sin A - x \sin B} = \dfrac{\sin A \cos B + \cos A \sin B}{\sin A \cos B - \cos A \sin B} = \dfrac{\sin(A + B)}{\sin(A - B)}$

Correct Options

Answer:01

Correct Options: A, B, C