

## Giải bài 8 trang 161 sgk toán Đại Số lớp 10

**Đề bài:**

Rút gọn các biểu thức sau:

$$a) \frac{1 + \sin 4a - \cos 4a}{1 + \cos 4a + \sin 4a}$$

$$b) \frac{1 + \cos a}{1 - \cos a} \tan^2 \frac{a}{2} - \cos^2 a$$

$$c) \frac{\cos 2x - \sin 4x - \cos 6x}{\cos 2x + \sin 4x - \cos 6x}$$

**Đáp án:**

$$\begin{aligned} a) \quad & \frac{1 + \sin 4a - \cos 4a}{1 + \cos 4a + \sin 4a} \\ &= \frac{2\sin^2 2a + 2\sin 2a \cos 2a}{2\cos^2 2a + 2\sin 2a \cos 2a} \\ &= \frac{2\sin 2a(\sin 2a + \cos 2a)}{2\cos 2a(\sin 2a + \cos 2a)} \\ &= \tan 2a \end{aligned}$$

$$\begin{aligned} b) \quad & \frac{1 + \cos a}{1 - \cos a} \tan^2 \frac{a}{2} - \cos^2 a \\ &= \frac{2\cos^2 \frac{a}{2}}{2\sin^2 \frac{a}{2}} \cdot \frac{2\sin^2 \frac{a}{2}}{2\cos^2 \frac{a}{2}} - \cos^2 \frac{a}{2} \\ &= 1 - \cos^2 \frac{a}{2} = \sin^2 \frac{a}{2} \end{aligned}$$

$$\begin{aligned}
c) \quad & \frac{\cos 2x - \sin 4x - \cos 6x}{\cos 2x + \sin 4x - \cos 6x} \\
&= \frac{(\cos 2x - \cos 6x) - \sin 4x}{(\cos 2x - \cos 6x) + \sin 4x} \\
&= \frac{-2 \sin \frac{2x+6x}{2} \sin \frac{6x-2x}{2} - \sin 4x}{-2 \sin \frac{2x+6x}{2} \sin \frac{2x-6x}{2} + \sin 4x} \\
&= \frac{2 \sin 2x - 1}{2 \sin 2x + 1}
\end{aligned}$$