

$$47) \sin(x+y) + \sin(x-y) = 2 \sin x \cos y$$

$$\rightarrow // \sin(x+y) + \sin(x-y) =$$

$$= \sin x \cos y + \cancel{\sin y \cos x} + \sin x \cos y - \cancel{\sin y \cos x}$$

$$= \underline{\underline{2 \sin x \cos y}}$$

$$48) \frac{\sin(x-y)}{\sin x \sin y} + \frac{\sin(y-z)}{\sin y \sin z} + \frac{\sin(z-x)}{\sin z \sin x} = 0$$

$$\rightarrow // \frac{\sin(x-y)}{\sin x \sin y} + \frac{\sin(y-z)}{\sin y \sin z} + \frac{\sin(z-x)}{\sin z \sin x} =$$

$$= \frac{\sin(x-y) \sin z + \sin(y-z) \sin x + \sin(z-x) \sin y}{\sin x \sin y \sin z}$$

$$= \frac{\{(\sin x \cos y - \sin y \cos x) \sin z + (\sin y \cos z - \sin z \cos y) \sin x + (\sin z \cos x - \sin x \cos z) \sin y\}}{\sin x \sin y \sin z}$$

$$= \frac{\{ \cancel{\sin x \cos y} \sin z - \cancel{\sin y \cos x} \sin z + \cancel{\sin y \cos z} \sin x - \cancel{\sin z \cos y} \sin x + \cancel{\sin z \cos x} \sin y - \cancel{\sin x \cos z} \sin y \}}{\sin x \sin y \sin z}$$

$$= 0 //$$