

$$1. \cos \frac{2}{7}\pi + \cos \frac{4}{7}\pi + \cos \frac{6}{7}\pi + \cos \frac{8}{7}\pi + \cos \frac{10}{7}\pi + \cos \frac{12}{7}\pi = ?$$

$X^7=1$  使用複數的  $N$  次方根

$$X_k = \cos \frac{2k\pi}{7} + i \sin \frac{2k\pi}{7}, k=0,1,2,3,4,5,6$$

$$X_0 + X_1 + X_2 + X_3 + X_4 + X_5 + X_6 = 0$$

$$X_1 + X_2 + X_3 + X_4 + X_5 + X_6 = -1 + 0i$$

$$\cos \frac{2}{7}\pi + \cos \frac{4}{7}\pi + \cos \frac{6}{7}\pi + \cos \frac{8}{7}\pi + \cos \frac{10}{7}\pi + \cos \frac{12}{7}\pi = -1$$

(B) -1