$$f(x) = \cos(144\pi - x) + 2\cos(1443\pi + x) - \sin(x + 2023\pi)$$
$$+ \cos(x) - \frac{\sqrt{3}}{2}$$

① ② ③

$\cos(K \times 2\pi + x) = \dfrac{\cos x}{2\omega b}$

① $\cos(144\pi - x) = \cos(72 \times 2\pi - x)$
$$= \cos(-x) \qquad \text{زوجية}$$
$$= \cos x.$$

② $2\cos(1443\pi + x) = 2\cos(1442\pi + \pi + x)$
$$= 2\cos(721 \times 2\pi + \pi + x)$$

$\boxed{\cos(\pi + x) = -\cos x}$ $\qquad$ قاعدة
$$= 2\cos(\pi + x)$$
$$= -2\cos x.$$

③ $\sin(x + 2023\pi) = \sin(2023\pi + x)$
$$= \sin(2022\pi + \pi + x)$$
$$= \sin(1011 \times 2\pi + \pi + x)$$

$\sin(\pi + x) = -\sin x$ $\qquad$ قاعدة
$$= \sin(\pi + x)$$
$$= -\sin x.$$

④ $\cos x = \cos x.$

$$f(x) = \cos x - 2\cos x - (-\sin x) + \cos x - \frac{\sqrt{3}}{2} \quad \text{إذن}$$
$$= 2\cos x - 2\cos x + \sin x - \frac{\sqrt{3}}{2}$$
$$= \sin x - \frac{\sqrt{3}}{2}.$$