

$$I = \int_0^4 \frac{2}{2\sqrt{2x+1}} dx = [\sqrt{2x+1}]_0^4 = 2 \quad *$$

$$J = \int_0^{\frac{\pi}{3}} \cos\left(x + \frac{\pi}{6}\right) dx = \left[\sin\left(x + \frac{\pi}{6}\right)\right]_0^{\frac{\pi}{3}} \quad *$$

$$= \sin \frac{\pi}{2} - \sin \frac{\pi}{6} = \frac{1}{2}$$

* نستعمل المكاملة بالاجزاء.

$$u'(x) = 1 \quad ; \quad u(x) = x + 1 \quad \text{نضع}$$

$$v(x) = \frac{1}{3} \sin 3x \quad ; \quad v'(x) = \cos 3x \quad \text{و}$$

$$K = \left[\frac{1}{3} (x+1) \sin 3x \right]_0^{\frac{\pi}{3}} - \frac{1}{3} \int_0^{\frac{\pi}{3}} \sin 3x dx \quad \text{إذن}$$

$$= 0 - \frac{1}{3} \left[-\frac{1}{3} \cos 3x \right]_0^{\frac{\pi}{3}} = \frac{1}{9} (-1 - 1)$$

$$K = -\frac{2}{9} \quad \text{وبالتالي :}$$