

حساب التكامل I

لدينا

$$I = \int_0^4 \frac{2}{2\sqrt{2x+1}} dx$$

$$= \int_0^4 \frac{u'(x)}{2\sqrt{u(x)}} dx$$

$\forall x \in \mathbb{R} \quad u(x) = 2x + 1$ حيث

$I = [\sqrt{u(x)}]_0^4$ ومنه

$= 2$

حساب التكامل J

لدينا

$$J = \int_0^{\frac{\pi}{3}} \cos\left(x + \frac{\pi}{6}\right) dx$$

$$= \left[\sin\left(x + \frac{\pi}{6}\right) \right]_0^{\frac{\pi}{3}}$$

$= \frac{1}{2}$

حساب التكامل K

لدينا

$$K = \int_0^{\frac{\pi}{3}} \frac{1}{3} (x+1) \sin' 3x dx$$

$$= \frac{1}{3} \int_0^{\frac{\pi}{3}} (x+1) \sin' 3x dx$$

$$= \frac{1}{3} \left[(x+1) \sin 3x \Big|_0^{\frac{\pi}{3}} - \int_0^{\frac{\pi}{3}} \sin 3x dx \right]$$

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

$= \frac{1}{9} (-1 - 1)$

$= -\frac{2}{9}$

