

ĐÁP ÁN TOÁN 12

II. TỰ LUẬN

Bài 1: (1đ)

$$\begin{cases} u = 2x - 1 \\ dv = \cos x dx \end{cases} \Rightarrow \begin{cases} du = 2dx \\ v = \sin x \end{cases} \quad (0.25)$$

$$F(x) = (2x - 1)\sin x + 2\cos x + C \quad (0.25)$$

$$F\left(\frac{\pi}{2}\right) = \pi - 1 + C \rightarrow C = 3 - 2\pi \quad (0.25)$$

$$F(x) = (2x - 1)\sin x + 2\cos x + 3 - 2\pi \quad (0.25)$$

Bài 2: (1đ)

$$(1 + 3i)z + (5 - i)\bar{z} = 4 - 4i$$

$$\rightarrow (1 + 3i)(a + bi) + (5 - i)(a - bi) = 4 - 4i$$

$$\rightarrow 6a - 4b + (2a - 4b)i = 4 - 4i \quad (0.25)$$

$$\rightarrow \begin{cases} 6a - 4b = 4 \\ 2a - 4b = -4 \end{cases} \quad (0.25)$$

$$\rightarrow \begin{cases} a = 2 \\ b = 2 \end{cases} \quad (0.25)$$

$$\rightarrow |z| = 2\sqrt{2} \quad (0.25)$$

Bài 3: (1đ)

$$VTCPa_{d_1} = (2, -2, -3), M_1(4, -3, -2)$$

$$a) VTCPa_{d_2} = (-2, 3, 3), M_2(2, -2, 1) \quad (0.25)$$

$$[a_{d_1}, a_{d_2}] \cdot M_1 M_2 = 0 \rightarrow d_1 \text{ cắt } d_2 \quad (0.25)$$

$$b) (P): \begin{cases} Qua M_1(4, -3, -2) \\ VTPT n_P = [a_{d_1}, a_{d_2}] \end{cases} \quad (0.25)$$

$$(P): 3x + 2z - 8 = 0 \quad (0.25)$$

Bài 4: (1đ)

$$a) R = d(I, (P)) = 3 \quad (0.25)$$

$$(S): (x+1)^2 + (y-2)^2 + (z-3)^2 = 9 \quad (0.25)$$

$$b) \Delta: \begin{cases} x = 1 + t \\ y = -2 + 2t \\ z = -3 + 3t \end{cases}$$

$$\text{Ta có } M \in \Delta, IM = 4$$

$$M(1+t, -2+2t, -3+3t)$$

$$\rightarrow 14t^2 - 48t + 40 = 0$$

$$\rightarrow \begin{cases} t = 2 \\ t = \frac{10}{7} \end{cases} \quad (0.25)$$

$$M(3, 2, 3)$$

$$\text{Đáp số } M\left(\frac{17}{7}, \frac{6}{7}, \frac{9}{7}\right) \quad (0.25)$$