1-) **a-)** $\int e^x \cos 5x \, dx = ?$ [15puan]   **b-)** $\int \dfrac{dx}{1 + \cos x + \sin x} = ?$ [15puan]

$UV - \int V \, du$

$e^x \cdot \cos 5x$

$x^2 - 4x \quad \cos 5x \cdot e^x + 5\int e^x \cdot \sin 5x \quad \begin{array}{l} \cos 5x = U \\ e^x = V \end{array} \quad \cos 5x \cdot e^x$

$2x - 4$

2-) $\int \dfrac{x+1}{x^2 - 4x + 5} dx = ?$ [30puan]

$e^x \cdot x^2 - 4x + 5$

$\dfrac{x \pm 1}{\sqrt{x^2 + 5}}$

$\dfrac{2x - 4}{2(x-2)} \qquad \cos 5x \cdot e^x + 5\int e^x \cdot \sin 5x \quad \dfrac{e^x \cdot \sin 5x}{5}$

$\dfrac{x}{x^2 - 4x + 5}$

3-) $\int \dfrac{\sqrt{x} + 2\sqrt[6]{x^5}}{1 + \sqrt[3]{x}} dx = ?$ [20puan]

$\dfrac{-2 + 3}{(x-2)^2 + 1}$

$3\sqrt{x} = U \qquad \sqrt{x} = U$

$\dfrac{x}{3\sqrt[3]{x^2}}$

4-) $\int \dfrac{7}{\sqrt{x^2 + 6x + 10}} dx = ?$ [20puan]