

Panel 9

Homework

$$\textcircled{1} \int_{C_1^+(0)} (e^z + \cos(z)) z^{-1} dz \quad \textcircled{2} \int_{C_1^+(1)} \frac{1}{(z+1)(z-1)} dz$$

$$\textcircled{3} \int_{C_1^+(1)} \frac{1}{(z^3-1)} dz \quad \textcircled{4} \int_{C_1^+(0)} \frac{\sin(z)}{z^4} dz$$

$$\textcircled{5} \int_{\gamma} \frac{\sin(z)}{z^2} \quad \text{a) } \gamma = C_1^+\left(\frac{\pi}{2}\right) \quad \text{b) } \gamma = C_1^+\left(\frac{\pi}{4}\right)$$

$$\textcircled{6} \int_{C_1^+(0)} z^{-n} e^z dz \quad \text{for any positive integer } n$$

$$\textcircled{7} \int_{\gamma} \frac{\sin(z)}{z^2+1} dz \quad \text{a) } \gamma = C_1^+(i) \quad \text{b) } \gamma = C_2^+(0)$$

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⇒

Panel 10

Homework (2)

$$\textcircled{8} \text{ Let } P(z) = a_0 + a_1 z + a_2 z^2 + a_3 z^3. \text{ Find } \int_{C_1^+(0)} \frac{P(z)}{z^n} dz, n > 0$$

$\textcircled{9}$ Let z_0, z_1 be two complex numbers inside a simple closed curve γ . Find

$$\int_{\gamma} \frac{1}{(z-z_0)(z-z_1)} dz$$

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