

Home Work 5

Assigned on 27th Feb

Due on 3rd March.

No extension will be allowed.

① Partial Fraction

① Expand

$$\frac{3x+7}{(x+2)(x+3)} = \frac{A}{x+2} + \frac{B}{x+3}$$

② Expand

$$\frac{3x+7}{(x+2)^2(x+3)} = \frac{A}{x+2} + \frac{B}{(x+2)^2} + \frac{C}{x+3}$$

③ using ① and ② calculate

$$\int \frac{3x+7}{(x+2)(x+3)} dx$$

$$\int \frac{3x+7}{(x+2)^2(x+3)} dx$$

② Let

$$f(x) = e^{7x} \sin 9x$$

$$g(x) = e^{7x} \cos 9x$$

calculate

$$I_1 = \int f(x) dx$$

and

$$I_2 = \int g(x) dx .$$