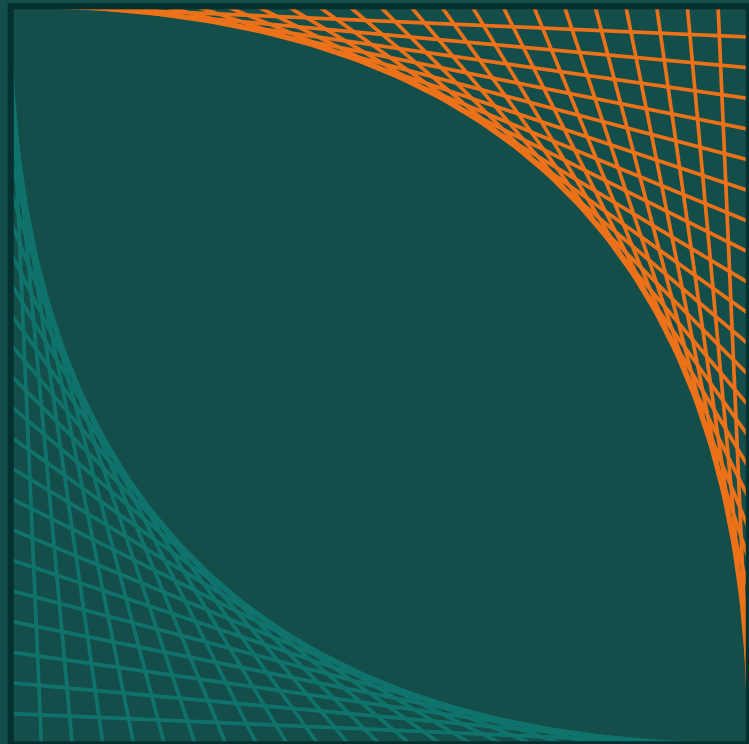


Integration

**Standard**

$$\int x^n dx = \frac{x^{n+1}}{n+1} + c, \quad \int \frac{1}{x} dx = \ln |x| + c, \quad \int e^{kx} dx = \frac{1}{k} e^{kx} + c$$

Trig

$$\int \cos kx dx = \frac{1}{k} \sin kx + c, \quad \int \sin kx dx = -\frac{1}{k} \cos kx + c$$

More trig **B**

$$\int \sec^2 kx dx = \frac{1}{k} \tan kx + c, \quad \int \tan kx dx = \frac{1}{k} \ln |\sec kx| + c, \\ \int \cot kx dx = \frac{1}{k} \ln |\sin kx| + c$$

Reverse chain **B**

$$\int \frac{f'(x)}{f(x)} dx = \ln |f(x)| + c, \quad \int f'(x)[f(x)]^n dx = \frac{[f(x)]^{n+1}}{n+1} + c$$

Linear inside

$$\int f(ax + b) dx = \frac{1}{a} F(ax + b) + c$$

By parts **B**

$$\int u \frac{dv}{dx} dx = uv - \int v \frac{du}{dx} dx$$

Area

$$\int_a^b y dx; \quad \text{between curves } \int_a^b (y_{\text{top}} - y_{\text{bottom}}) dx; \\ \text{parametric } \int y \frac{dx}{dt} dt$$

Identities to integrate

$$\sin^2 x = \frac{1}{2}(1 - \cos 2x), \quad \cos^2 x = \frac{1}{2}(1 + \cos 2x)$$

B given in the exam. Learn the rest.