

Q(1) Evaluate each of the following integrals 10 marks

1/ $\int \sin x \, dx = \dots\dots\dots$

2/ $\int 3x^6 \, dx = \dots\dots\dots$

3/ $\int \cos x \, d \cos x = \dots\dots\dots$

4/ $\int \frac{x+1}{x} \, dx = \dots\dots\dots$

5/ $\int \sqrt[3]{x^4} \, dx = \dots\dots\dots$

6/ $\int \frac{dx}{x\sqrt{1-x^2}} = \dots\dots\dots$

7/ $\int \frac{dx}{\sqrt{4-x^2}} = \dots\dots\dots$

8/ $\int 5e^{2x} \, dx = \dots\dots\dots$

9/ $\int \cos 3x \, dx = \dots\dots\dots$

10/ $\int \tan x \, dx = \dots\dots\dots$

Q (2)

10 marks

1) Evaluate $\int \cos^3 x \, dx$

2) Evaluate $\int x^2 \sqrt{x-1} \, dx$

3) Solve the initial –value problem

$$\frac{dy}{dx} = \frac{x+1}{\sqrt{x}} \quad ; \quad y(1) = 0$$

4) Evaluate $\int \sqrt{x^2 + 1} dx$

5) Evaluate

$$\int \sin^2 x \cos^2 x dx$$