INTEGRATION OF sin^2x AND cos^2x

1 Find: **(a)** $\int 2\cos^2 x\,dx$ **(b)** $\int 2\sin^2 x\,dx$ **(c)** $\int \sin^2 \frac{x}{2}\,dx$

INTEGRATION OF sin^2x AND cos^2x

1 Find: **(d)** $\int 2\cos^2\frac{x}{2}dx$ **(e)** $\int \sin^2 3x\,dx$ **(f)** $\int \cos^2 4x\,dx$

INTEGRATION OF sin^2x AND cos^2x

2 Evaluate: **(a)** $\int_0^{\frac{\pi}{2}} 2\sin^2 x\,dx$ **(b)** $\int_0^{\frac{\pi}{4}} \sin^2 x\,dx$ **(c)** $\int_{\frac{\pi}{6}}^{\frac{\pi}{3}} \cos^2 x\,dx$

INTEGRATION OF sin^2x AND cos^2x

3 The region under the curve $y = \sin x$ between $x = 0$ and $x = \pi$ is rotated about the x-axis. The volume of the solid of revolution formed is given by:

A $\int_0^{\pi} \sin^2 x\,dx$ **B** $\pi\int_0^{\pi} \sin x\,dx$ **C** $\pi\int_0^{\pi} \sin^2 x\,dx$ **D** $\pi\int_0^{\pi} \sin x^2\,dx$

4 The region under the curve $y = \cos x$ between $x = \frac{\pi}{6}$ and $x = \frac{\pi}{3}$ is rotated about the x-axis. Find the volume of the solid of revolution formed.

INTEGRATION OF sin^2x AND cos^2x

9 The region bounded by the curves $y = \sin 3x$, the x-axis and the ordinate $x = \frac{\pi}{12}$ is rotated about the x-axis. Calculate the exact value of the volume of the solid of revolution formed.

INTEGRATION OF sin^2x AND cos^2x

10 The region bounded by the curves $y = \sin x$, $y = \cos x$ and the x-axis between $x = 0$ and $x = \frac{\pi}{2}$ is rotated about the x-axis.

(a) Find the point of intersection of the two curves.

(b) Calculate the exact value of the volume of the solid of revolution formed.