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2015 **11**
a Find $\int \sin^2 x \, dx$.

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$$\begin{aligned}\int \sin^2 x \, dx &= \int \frac{1}{2}(1 - \cos 2x) \, dx \\ &= \frac{1}{2} \left[x - \frac{1}{2} \sin 2x \right] + c\end{aligned}$$

State Mean:
1.64

* These solutions have been provided by [projectmaths](#) and are not supplied or endorsed by BOSTES.

Board of Studies: Notes from the Marking Centre

The question was generally very well done by a large number of candidates.

In the better responses, candidates approached the question by first stating a correct relationship between $\sin^2 x$ and $\cos 2x$ before then giving the correct primitive.

Common problems were:

- attempting to quote the primitive directly, but making an error
- incorrectly making $\sin^2 x$ the subject of their correct identity
- giving the incorrect primitive for $\cos 2x$