2015 **11 g** Evaluate $\int_0^{\frac{\pi}{4}} \cos 2x \ dx$. **2**

$$\int_0^{\frac{\pi}{4}} \cos 2x \, dx = \left[\frac{1}{2}\sin 2x\right]_0^{\frac{\pi}{4}}$$
$$= \frac{1}{2}\left[\sin\frac{\pi}{2} - \sin 0\right]$$
$$= \frac{1}{2}(1 - 0)$$
$$= \frac{1}{2}$$

State Mean: **1.61**

* These solutions have been provided by *projectmaths* and are not supplied or endorsed by BOSTES.

Board of Studies: Notes from the Marking Centre

(g) This part was attempted well. Evaluating $sin2x$ when $x = \frac{\pi}{4}$ was difficult for some candidates. They often calculated $2sinx$ or only $sinx$.

Common problems were:

- using an incorrect primitive function
- substituting limits incorrectly
- not evaluating and leaving the solution in terms of $\sin\frac{\pi}{2}$
- evaluating in degrees rather than radians.