| 13 | 11b | Find $\int \dfrac{1}{\sqrt{49 - 4x^2}}\ dx.$ | 2 |
|----|-----|--------------------------------------------|---|

State Mean:
**1.41/2**

$$\int \frac{1}{\sqrt{49 - 4x^2}}\ dx = \int \frac{1}{\sqrt{4(\frac{49}{4} - x^2)}}\ dx$$

$$= \frac{1}{2} \int \frac{1}{\sqrt{\frac{49}{4} - x^2}}\ dx$$

$$= \frac{1}{2}\ \sin^{-1} \frac{x}{\left(\frac{7}{2}\right)}\ + c$$

$$= \frac{1}{2}\ \sin^{-1} \frac{2x}{7}\ + c$$

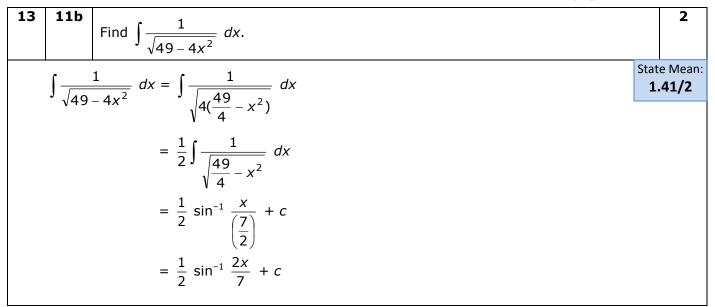\* These solutions have been provided by *projectmaths* and are not supplied or endorsed by the Board of Studies

| **Board of Studies: Notes from the Marking Centre** |
|---|
| Many candidates recognised that the integral was an inverse trigonometric function. |
| Common problems were: <br> • dealing with the constants 2 and 7 incorrectly <br> • lack of accuracy. |
| **Source: http://www.boardofstudies.nsw.edu.au/hsc_exams/** |