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**19** **11**  
**M** **e** Evaluate  $\int_0^1 \frac{1}{(3x+2)^2} dx$ .

**3**

$$\begin{aligned}\int_0^1 \frac{1}{(3x+2)^2} dx &= \int_0^1 (3x+2)^{-2} dx \\ &= \left[ \frac{(3x+2)^{-1}}{-1 \times 3} \right]_0^1 \quad \checkmark \quad \checkmark \\ &= -\frac{1}{3} \left[ \frac{1}{3x+2} \right]_0^1 \\ &= -\frac{1}{3} \left[ \frac{1}{3(1)+2} - \frac{1}{3(0)+2} \right] \\ &= -\frac{1}{3} \left[ \frac{1}{5} - \frac{1}{2} \right] \\ &= \frac{1}{10} \quad \checkmark\end{aligned}$$

State Mean:  
**2.08/3**

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

### Marking Feedback:

#### In better responses, students were able to:

- use the correct order when substituting limits

#### Areas for students to improve include:

- rearranging a fraction to obtain a primitive involving a negative power
- remembering to include the limits of integration once the primitive is found