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- 2015 5** Using the trapezoidal rule with 4 subintervals, which expression gives the approximate area under the curve  $y = xe^x$  between  $x = 1$  and  $x = 3$ ?

**1**

- (A)  $\frac{1}{4}(e^1 + 6e^{1.5} + 4e^2 + 10e^{2.5} + 3e^3)$  (B)  $\frac{1}{4}(e^1 + 3e^{1.5} + 4e^2 + 5e^{2.5} + 3e^3)$   
 (C)  $\frac{1}{2}(e^1 + 6e^{1.5} + 4e^2 + 10e^{2.5} + 3e^3)$  (D)  $\frac{1}{2}(e^1 + 3e^{1.5} + 4e^2 + 5e^{2.5} + 3e^3)$

**B**

$x$	1	1.5	2	2.5	3
$f(x)$	$e^1$	$1.5e^{1.5}$	$2e^2$	$2.5e^{2.5}$	$3e^3$

$$A \approx \frac{0.5}{2}(e^1 + 2\{1.5e^{1.5} + 2e^2 + 2.5e^{2.5}\} + 3e^3)$$

$$= \frac{1}{4}(e^1 + 3e^{1.5} + 4e^2 + 5e^{2.5} + 3e^3)$$

State Mean:

**0.6**

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