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**