

# Classroom Voting Questions: Calculus II

## Section 7.2 Integration by Parts

1. What is the derivative of  $f(x) = \frac{1}{3}xe^{3x} - \frac{1}{9}e^{3x} + 25$ ?

- (a)  $f'(x) = xe^{3x}$
- (b)  $f'(x) = \frac{2}{3}e^{3x}$
- (c)  $f'(x) = \frac{1}{3}e^{3x} + xe^{3x}$
- (d)  $f'(x) = e^{3x}$

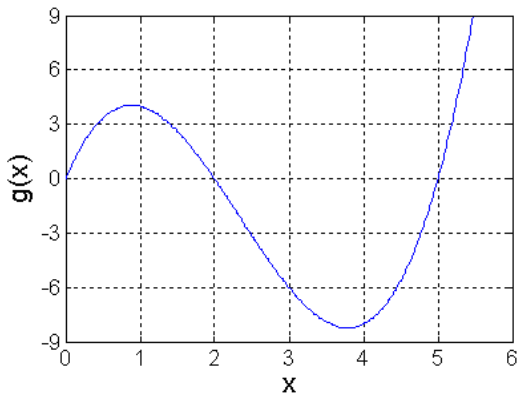
2. What is  $\int xe^{4x} dx$ ?

- (a)  $\frac{1}{8}x^2e^{4x} + C$
- (b)  $\frac{1}{4}xe^{4x} - \frac{1}{16}e^{4x} + C$
- (c)  $\frac{1}{4}xe^{4x} - \frac{1}{4}e^{4x} + C$
- (d)  $\frac{1}{16}e^{4x} - \frac{1}{4}xe^{4x} + C$

3. Find  $\int_1^4 \ln(t)\sqrt{t} dt$ .

- (a) 4.28
- (b) 3.83
- (c) -1
- (d) 0.444
- (e) 5.33
- (f) This integral cannot be done with integration by parts.

4. Estimate  $\int_0^5 f(x)g'(x)dx$  if  $f(x) = 2x$  and  $g(x)$  is given in the figure below.



- (a)  $\approx 40$
- (b)  $\approx 20$
- (c)  $\approx 10$
- (d)  $\approx -10$
- (e) This integral cannot be done with integration by parts.

5. Find an antiderivative of  $x^2e^x$ .

- (a)  $x^2e^x - 2xe^x + 2e^x$
- (b)  $x^2e^x - 2xe^x$
- (c)  $\frac{1}{3}x^3e^x - x^2e^x + 2e^x$
- (d)  $x^2e^x - 2xe^x - 2e^x$
- (e) This integral cannot be done with integration by parts.

6. How many applications of integration by parts are required to evaluate  $\int x^3e^x dx$ ?

- (a) 1
- (b) 2
- (c) 3
- (d) The integral cannot be evaluated using integration by parts.

7.  $\int x \cos 2x dx =$

- (a)  $x \sin 2x + \frac{1}{2} \cos 2x$
- (b)  $\frac{1}{2}x \sin 2x + \frac{1}{4} \cos 2x$
- (c)  $\frac{1}{2}x \sin 2x - \frac{1}{4} \cos 2x$
- (d) None of the above