Name: \_\_\_\_

1. [2 parts, 2 points each] Use integration by parts to find the given integral.

(a) 
$$\int_0^1 \frac{x}{e^{3x}} \, dx$$

(b)  $\int x^2 \ln x \, dx$ 

 $\mathbf{OVER} \rightarrow$ 

2. [2 points] Find the area of the region bounded by the curves  $y = x^2 - 3x$  and y = x - 3.

3. [2 points] Find the average value of the function  $f(x) = (4x - 5)^6$  over the range  $1 \le x \le \frac{3}{2}$ .

 $\mathbf{OVER} \rightarrow$ 

4. [2 points] Find the following integral using techniques of your choice.

$$\int \frac{1}{x \ln x} + e^{5x} \, dx$$