

Name \_\_\_\_\_

**You have 15 minutes for this quiz – no calculators allowed.**

1. (3 points) Find the most general antiderivative of the function  $f(x) = 10x^2(2x - 3)^2$ .

2. (4 points) Find a formula for  $f(x)$  given that  $f''(x) = 4 \cos x$ ,  $f(0) = 10$  and  $f'(0) = 5$ .

3. (3 points) The area between the  $x$ -axis and the graph of  $f(x) = x^2 \ln x$  on the interval  $[5, 15]$  can be written as a limit. Fill in the missing information in this limit so that the only variables appearing are  $n$  and  $k$ . You do not need to evaluate this limit.

$$AREA = \lim_{n \rightarrow \infty} \sum_{k=1}^n \left[ \qquad \qquad \qquad \right]$$