

Preliminary Homework  
Assigned Monday, September 30

Note: Preliminary homework is always graded credit or no credit. **You get full credit for completing the assignment, whether or not your answers are correct, as long as your work shows you have thought about the problem.** The purpose of preliminary homework is to start you thinking about the topic of the next class.

You may use your preliminary homework for in-class activities with your classmates. You should be sure to think about these questions so you will be prepared.

Preliminary homework is always due at the *beginning* of the next class.

1. Find the derivative of the function  $f(x) = x \cos(x)$ :

$$\frac{d}{dx} (x \cos(x)) = \underline{\hspace{10cm}}.$$

2. Take the antiderivative with respect to  $x$  of both sides of the equation you found in part 1. Then evaluate every integral in the resulting equation except for  $\int x \sin(x) dx$ . (Don't forget the Fundamental Theorem of Calculus.)

3. Use part 2 to find an antiderivative for  $x \sin(x)$ :

$$\int x \sin(x) dx = \underline{\hspace{10cm}}.$$