Math 8
Winter 2020

Preliminary Homework
Assigned Monday, January 20

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.

NOTE: This preliminary homework is due at the beginning of class during x-hour this week. For Section 1 (Groszek) this is Thursday. For Sections 2 and 3 (Lafreniere and van Wyk) this is Tuesday.

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

$$\frac{d}{dx}\left(x\cos(x)\right) = \underline{\hspace{4cm}}.$$

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 $x\sin(x)$:

$$\int x\sin(x)\,dx = \underline{\hspace{4cm}}.$$