Names and student IDs: ________________________________

Most of the problems use integration by parts, at least for the first step. One uses substitution, and one uses something else.

1. \[ \int x \sin(x) \, dx = \]

2. \[ \int \ln(t) \, dt = \]

3. \[ \int t^2 \sin(t) \, dt = \]

4. \[ \int e^{2x} \sin(3x) \, dx = \]

5. Let \( G \) be a function with \( G'(x) = \sin(x^3) \) for all real \( x \). Then (in terms of \( G \) and elementary functions)
   \[ \int xG(x) \, dx = \]

6. \[ \int \frac{3q}{1 + 6q^2} \, dq = \]

7. \[ \int \tan^2(x) \, dx = \]

8. \[ \int r \ln(r) \, dr = \]

\( Date: 26 \) January 2018.