

Name _____ Student number _____ Quiz section: _____

There are three problems in this quiz (the other two are on the back of this page), total of 20 points. Write legibly and show your work fully.

1. (a) (5 points) Find $\lim_{x \rightarrow 0} \frac{\cos(3x) - \cos(5x)}{x^2}$.

1. (b) (5 points) Find $\lim_{x \rightarrow \infty} \left(\frac{x+2}{x+5} \right)^x$.

2. (4 points) Evaluate $\int_0^1 (x^2 + x)e^{-x} dx$.

3. (6 points) Find $\int \cos(2\sqrt{x}) dx$. (*Hint: First make a substitution and then use integration by parts.*)