

Name \_\_\_\_\_ Student number \_\_\_\_\_ Quiz section: \_\_\_\_\_

**1 :** (9 pts) Evaluate

$$\int x^2 e^x dx.$$

**2 :** (5 pts) Using shells, SET UP an integral to find the volume generated by rotating the region between  $y = x^2$ ,  $y = 0$ ,  $x = 1$  and  $x = 2$  about the line  $x = 1$ . DO NOT EVALUATE THE INTEGRAL.

**3 :** (6 pts) A force of 1N is required to hold a spring stretched 50cm (beyond its natural length). Find the work done by stretching the spring 50cm beyond its natural length (starting with the relaxed spring).