Name:

Student ID #:

Question 1. Evaluate the following integrals:

(1)
$$\int_0^{\pi/2} |\cos(2x)| \, \mathrm{d}x$$

(2)
$$\int_0^2 (x + \sqrt{4 - x^2}) \, \mathrm{d}x$$

Question 2. If $y = \int_{\sin(2x)}^{5x} \sin(u^2) \, \mathrm{d}u$, then find $\dfrac{\mathrm{d}y}{\mathrm{d}x}$.

Question 3. Find the total area between the curve $y = (x+1)^2(x-1)$ and the x-axis on the interval $[-2, 3]$.

Your Solution.