Quiz 3

(1) Write down the definite integral that gives the area in the region bounded by \( y = x^2, \ y = -2x^4, \ x = -1 \) and \( x = 1 \). (You do not need to solve the integral.)

\[
\int_{-1}^{1} \left( x^2 - 2x^4 \right) \, dx
\]

(2) Write down the definite integral that gives the area between the curves \( y = x^3 \) and \( y = x^2 \). (You do not need to solve the integral.)

\[
\int_{0}^{1} \left( x^3 - x^2 \right) \, dx
\]

(3) Write down the definite integral that gives the volume of the region swept out by rotating around the \( x \)-axis the region bounded by the curve \( y = \sqrt{\cos x} \), \( 0 \leq x \leq \pi/2 \). (You do not need to solve the integral.)

\[
\pi \int_{0}^{\pi/2} \cos x \, dx
\]

(4) Write down the definite integral that gives the volume of the region swept out by rotating around the \( y \)-axis the triangle with vertices \( (2, 0), (2, 1) \), and \( (1, 1) \). (You do not need to solve the integral.)

\[
\pi \int_{0}^{1} \left[ 2 - \left( 2 - \frac{y}{2} \right)^2 \right] \, dy
\]

(5) Sketch your favorite 3-D solid. (You do not need to find its volume.)