Practice Exam 5
Math 7

Name:_____   Date:_____

Be aware of the following: Order of Operations, Notation, and Wording
For example: "^" means exponent, "( )" are parenthesis that enclose operations, "∈" means element
of, "ℝ" is the set of all real numbers, "/" denotes a fraction.
Note that Professor Konya requires a detailed analysis for all answers.

1. Find a lower sum for $f(x) = \sin x$ on $[0, \frac{\pi}{2}]$ let n=6.

2. Using the definition of the definite integral to evaluate $\int_0^2 x^2\, dx$. Use a right end-point approximation to generate the Riemann Sum.

3. Find the total area between $f(x) = x^3 + 2x$ and the x axis over the interval [-2,2].

4. Find the derivative of g(x).

$$g(x) = \int_{1}^{x^{-3}} \tan x \, dx$$

5. Evaluate $\int_{1}^{4} 4x^{\frac{5}{2}} - 3x^{\frac{3}{2}} \, dx$.

6. Given a velocity function v(t) (in m/s) for a particle in motion from time t = 0 to time t = 3, Find the net displacement of the particle.

$$v(t) = 3t - 5$$

7. Evaluate $\int 6x(3x^2 + 4)^4 \, dx$

8. Graph the equation and shade the area of the region between the curve. If necessary, break the region into sub-regions to determine its entire area.

$$y = x^3 \text{ and } y = x^2 - 2x \text{ over } x = [-1,1]$$

9. Find the volume of revolution bounded by the graphs of $f(x) = 2x^2$, x=0, x=4, y=0, Rotated about the x-axis. Additionally, draw the region bounded by the curves.