MAT 230, Paper Quiz #6, Spring 2017 Name KEY

Instructions: Show all work, and provide exact answers. For full credit will be given to the steps shown than for the final answer. Be sure to provide thorough explanations.

1. Integrate.
   a. $\int \frac{5}{\sqrt[4]{x^7}} dx$

$= \int 5x^{-7/4} dx = 5\left(\frac{4}{-3}\right)x^{-3/4} + C$

$= -\frac{20}{3}x^{-3/4} + C = \frac{-20}{3\sqrt[4]{x^3}} + C$

   b. $\int 3e^{4x} dx$

$= \frac{3}{4}e^{4x} + C$

2. Evaluate $\sum_{i=1}^{6}(5i + i^2)$

$(5+1) + (10+4) + (15+9) + (20+16) + (25+25) + (30+36)$

$= 6 + 14 + 24 + 36 + 50 + 66 = 196$

3. Find the area under the curve $y = x^3$ on the interval $[0,2]$. Sketch the graph.

$\int_0^2 x^3 dx =$

$\frac{1}{4}x^4\Big|_0^2 =$

$\frac{1}{4}[2^4 - 0] = \frac{1}{4}[16]$

$= 4$