Quiz 7

1. (3 points) Does $\int_0^1 \frac{1}{2x} \, dx$ converge or diverge? Support your answer.

2. (4 points) Find the area between $f(x) = 4$ and $g(x) = x^2$
   
   a. Draw a graph of the situation.

   b. Find the bounds of integration (ie: find $a$ and $b$).

   c. Calculate the area.

3. (3 points) Give the 5th term in the sequence, and then find the nth term in the sequence (ie: $a_n$ in terms of $n$).

   $a_1 = 6$

   $a_2 = 12$

   $a_3 = 24$

   $a_4 = 48$

   $a_5 =$

   ...

   $a_n =$