Name: ———————————————   **Team:** ———————————————

Directions: You have 30 minutes to complete these 3 problems. All answers must be written in accordance with the conventions on the Conventions page on the MMM website. Write all of your answers on the this sheet. You may only use scratch paper provided by the MMM. No calculators allowed. Please remember to check your work!

1. Let $g(x)$ be the line tangent to the parabola $f(x)$ at $x = 2$. If $f(x)$ goes through $(0,0)$, find all n for which $f'(n) = g'(n)$.

   1. ——————

2. Evaluate $\displaystyle\int_0^2 \sqrt{2x - x^2}\, dx$.

   2. ——————

3. Evaluate $\displaystyle\int_0^1 e^{\sqrt{x}}\, dx$.

   3. ——————