Review Problems

February 24, 2017

- 1. (Fall 2007, Exam 2, #10) The region bounded by the x axis, the curve $y = x^2$ and x = 2 has area 4. If its centroid is at (\bar{x}, \bar{y}) , then $\bar{y} =$
- 2. (Fall 2007, Exam 2, #11) $\lim_{n\to\infty} \frac{n}{e^{\sqrt{n}}}$
- 3. (Fall 2008, Exam 2, #9) Three objects of mass 3 grams, 2 grams and 1 gram are placed at (2, 2), (1, 1), and (2, 4) respectively. What is the centroid of the system of three objects?
- 4. (Fall 2008, Exam 2, #10) Given that the plane region defined by $0 < y < 1 + x^2$ and -1 < x < 1 has area equal to 8/3, what is its centroid?
- 5. (Fall 2008, Exam 2, #11) Evaluate $\lim_{n\to\infty} (n \frac{n^2 2n 12}{n})$.
- 6. (Fall 2008, Exam 2, #12) Evaluate $\lim_{p\to\infty} \frac{\ln(4p+5)}{p}$.
- 7. (Fall 2009, Exam 2, #9) A lamina of uniform density has the shape of the region bounded by y = x, and $y = x^2$. The area of the region is 3/10. What integral gives the y-coordinate \bar{y} of the center of mass?
- 8. (Fall 2009, Exam 3, #1) Determine which sequences converge.

(a)
$$\left\{\frac{n^5}{5^n}\right\}$$

(b) $\left\{\frac{n}{(\ln n)^2}\right\}$
(c) $\left\{\frac{\cos n}{n}\right\}$