MATH 234: HOMEWORK 9

DUE: (TBA) VIA ILLINOIS COMPASS

1. Compute:

$$\int_0^3 \frac{x^2}{(2+3x^3)^2}\,dx$$

2. Compute:

$$\int_0^{152} \frac{1}{\sqrt[3]{t+27}}\,dt$$

3. Compute:

$$\int_0^2 \frac{30x}{(5x^2+3)^2}\,dx$$

4. Compute:

$$\int_0^1 5x^4\sqrt{x^5+9}\,dx$$

5. Compute:

$$\int_0^1 xe^{(x^2)}\,dx$$

6. Compute:

$$\int_{-2}^1 \frac{x}{\sqrt{x+3}}\,dx$$

7. Considering

$$\lim_{b\to\infty} \frac{2b-1}{b},$$

which of the following is true?

(A) The limit exists and is equal to zero.
(B) The limit exists and is equal to one.
(C) The limit exists and is equal to two.
(D) The limit diverges.
(E) None of the above.

8. Compute:

$$\int_3^\infty e^{-x/2}\,dx$$

9. Find the value of k that makes $f(x) = kx$ a probability function on the interval $1 \leq x \leq 2$.