Practice Midterm Version 1 (Math 19B, Fall 2019)

Time: 60 minutes

No calculators, cellphones, notes or other tools allowed.

Maximal score: 30 points

1. Compute the following definite integrals:

(a) $\int_{-1}^{1}(x^3)dx$,   (b) $\int_{-\pi}^{\pi}\cos(\theta)d\theta$,   (c) $\int_{1}^{2}\frac{e^{\sqrt{t}}}{\sqrt{t}}dt$.   (2+3+5 points)

2. Find the area of the region bounded by the curves $y = e^x$, $y = 2$ and $y = 1 - x$.   (7 points)

3. Find the derivative of the function $A(x) = \int_{-1}^{x} e^{t^2}dt$.   (5 points)

4. Find an antiderivative of the function $f(x) = x\tan(x^2)$.   (8 points)

Practice Midterm Version 2 (Math 19B, Fall 2019)

Time: 60 minutes

No calculators, cellphones, notes or other tools allowed.

Maximal score: 30 points

1. Compute the definite integral $\int_0^\pi \sin^2(x)dx$. (8 points)

2. Compute the volume of a ball with radius R using the shell method. (7 points)

3. Compute the indefinite integral

$$\int \frac{t}{\sqrt{4-t^2}}\, dt\,.$$

(8 points)

4. Find an antiderivative of the function $f(x) = x\cos(x)$. (7 points)

Practice Midterm Version 3 (Math 19B, Fall 2019)

Time: 60 minutes

No calculators, cellphones, notes or other tools allowed.

Maximal score: 30 points

1. Compute the definite integral $\int_0^2 (x^2 - 2x + 1)dx$.   (5 points)

2. Compute the definite integral $\int_0^1 \frac{1}{1+x^2}dx$.   (7 points)

3. Compute the volume of the solid obtained by rotating the area between the curves $y = x^2 - 1$, $y = -1$, and $x = 2$ about the y-axis.   (8 points)

4. Compute the indefinite integral $\int x^2 e^x dx$.   (10 points)