Math 132: Discussion Session: Week 10

Directions: In groups of 3-4 students, work the problems on the following page. Below, list the members of your group and your answers to the specified questions. Turn **this paper** in at the end of class. You do not need to turn in the question page or your work.

Additional Instructions: It is okay if you do not completely finish all of the problems. Also, each group member should work through each problem, as similar problems may appear on the exam.

Scoring:

Correct answers	Grade
0–3	0%
4–6	80%
7–11	100%

Group Members:

7.5: Strategy for Integration.

(1) $\displaystyle\int \frac{1+\cos x}{1-\cos x}\,dx =$

(2) $\displaystyle\int \frac{1}{\sqrt{x+4}+\sqrt{x}}\,dx =$

(3) $\displaystyle\int \frac{2x^2\,dx}{(x^2-1)^{3/2}} =$

7.8: Improper Integrals.

(1) $\displaystyle\int_0^\infty \frac{1}{(x-3)^2}\,dx =$

(2) $\displaystyle\int_0^\infty \cos(3x)\,dx =$

(3) $\displaystyle\int_2^3 \frac{1}{\sqrt{3-x}}\,dx =$

(4) $\displaystyle\int_e^\infty \frac{1}{x(\ln x)^3}\,dx =$

8.1: Arclength.

(1) The arclength is:

(2) The arclength is:

(3) The arclength is:

(4) The arclength is:

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7.5: Strategy for Integration. Compute the following integrals using any integration method you can.

(1) $\displaystyle\int \frac{1+\cos x}{1-\cos x}\,dx$

(2) $\displaystyle\int \frac{1}{\sqrt{x+4}+\sqrt{x}}\,dx$

(3) $\displaystyle\int \frac{2x^2\,dx}{(x^2-1)^{3/2}}$

7.8: Improper Integrals. For each the following integrals, evaluate the integral if it converges. If it diverges, write "diverges because" and write down the limit that does not exist.

(1) $\displaystyle\int_0^\infty \frac{1}{(x-3)^2}\,dx.$

(2) $\displaystyle\int_0^\infty \cos(3x)\,dx.$

(3) $\displaystyle\int_2^3 \frac{1}{\sqrt{3-x}}\,dx.$

(4) $\displaystyle\int_e^\infty \frac{1}{x(\ln x)^3}\,dx.$

8.1: Arclength. Find the arclength of the following curves.

(1) $y = 1 + 2x^{\frac{3}{2}}$ from $x = 0$ to $x = 1$.

(2) $x = \frac{1}{3}\sqrt{y}(y-3)$ $1 \le y \le 16$

(3) $y = \sqrt{x-x^2} + \arcsin(\sqrt{x})$ from $x = 0$ to $x = \frac{1}{4}$

(4) $x^2 = (y-4)^3$ from $(1,5)$ to $(8,8)$.