

Math 132: Discussion Session: Week 9

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%
7-12	100%

Group Members:

7.3: Trigonometric Substitution.

$$(1) \int \frac{dx}{(9-x^2)^{3/2}} =$$

$$(2) \int \frac{dx}{x\sqrt{x^2+25}} =$$

$$(3) \int \frac{dx}{\sqrt{x^2+2x+10}} =$$

$$(4) \int \frac{x^2}{\sqrt{5x^2-49}} dx =$$

$$(5) \int \frac{dx}{(x^2+a^2)^2} = \text{for } a > 0$$

7.4: The Method of Partial Fractions.

$$(1) \int \frac{x^3+1}{x^2+1} dx =$$

$$(2) \int \frac{1}{(x+2)(x^2+4x+14)} dx =$$

$$(3) \int \frac{4x^2-12}{(2x+5)^3} dx =$$

$$(4) \int \frac{x^5}{x^4-1} dx =$$

$$(5) \int \frac{10}{(x-1)^2(x^2+4)} dx =$$

7.5: Strategy for Integration.

$$(1) \int x^3(\ln x)^2 dx =$$

$$(2) \int (5 \sec x - \cos x)^2 dx =$$

Math 132 Discussion Session: Week 9

7.3: Trigonometric Substitution. Compute the following integrals using trigonometric substitution. You might need to look up some trig integrals in the textbook.

$$(1) \int \frac{dx}{(9-x^2)^{3/2}}$$

$$(2) \int \frac{dx}{x\sqrt{x^2+25}}$$

$$(3) \int \frac{dx}{\sqrt{x^2+2x+10}}$$

$$(4) \int \frac{x^2}{\sqrt{5x^2-49}} dx$$

$$(5) \int \frac{dx}{(x^2+a^2)^2} \text{ for } a > 0$$

7.4: The Method of Partial Fractions. Compute the following integrals using the method of partial fractions:

$$(1) \int \frac{x^3+1}{x^2+1} dx$$

$$(2) \int \frac{1}{(x+2)(x^2+4x+14)} dx$$

$$(3) \int \frac{4x^2-12}{(2x+5)^3} dx$$

$$(4) \int \frac{x^5}{x^4-1} dx.$$

$$(5) \int \frac{10}{(x-1)^2(x^2+4)} dx$$

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

$$(1) \int x^3(\ln x)^2 dx$$

$$(2) \int (5 \sec x - \cos x)^2 dx$$