

Extra Credit Assignment #1

Due 5/9

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

$$6) \int \frac{1}{\sqrt{36-x^2}} dx$$

$$2) \int x^5 \ln x dx$$

$$7) \int \frac{(\ln x)^7}{x} dx$$

$$3) \int \sin^6 \theta \cos \theta d\theta$$

$$8) \int x \sqrt{x^2+81} dx$$

$$4) \int \sin(6\theta) \cos \theta d\theta$$

$$9) \int \frac{x^3 - 7x^2 + 2}{\sqrt{x}} dx$$

$$5) \int x^4 e^{7x} dx$$

$$10) \int x(x^2-5)^2 dx$$

Extra Credit Assignment #2

Due 5/10

In 1-3, use substitution

1) $\int x^2 \sqrt{7-3x^3} dx$

2) $\int x^3 e^{7-x^4} dx$

3) $\int \cos x \cdot \cos(\sin x) dx$

In 4 and 5, use table of integrals

4) $\int \sin^3 x dx$

5) $\int e^{5x} \cos(3x) dx$

In 6 and 7, use parts
(or tabular)

6) $\int x^3 e^{5x} dx$

7) $\int x^8 \ln x dx$

In 8 and 9, use trig substitution

8) $\int \frac{1}{x^2 \sqrt{25-x^2}} dx$

9) $\int \frac{1}{\sqrt{x^2+49}} dx$

Extra Credit Assignment #3

Due 5/11

Find each integral by the indicated method and check your answer by differentiating on 1, 2, and 4

1) Partial Fractions:

$$\int \frac{1}{x^2 - 8x - 20} dx$$

4) Substitution:

$$\int x^2 (x^3 + 5)^{20} dx$$

2) Tabular:

$$\int x^2 \sin x dx$$

5) Trig Substitution:

$$\int \frac{1}{(\sqrt{4-x^2})^3} dx$$

3) Table of Integrals:

$$\int \sin(5x) \sin(3x) dx$$

Extra Credit Assignment #4

Due 5/14

Solve each of the ~~four~~ following by the method of your choice. Then choose 3 of them to check by differentiation.

$$1) \int \frac{x^5 - 7x^4 + x^2}{x^3} dx$$

$$4) \int \frac{5x+3}{x^2+7x+12} dx$$

$$2) \int x(x^2+5)^2 dx$$

$$5) \int x^3 e^{9x} dx$$

$$3) \int e^{3x} \sin(e^{3x}) dx$$

$$6) \int \frac{x^2}{\sqrt{9-x^2}} dx$$

Extra Credit Assignment #5

Due 5/15

1) $\int \cos^5 x \, dx$

2) $\int \frac{x}{\sqrt{x^2+81}} \, dx$

3) $\int \left(6\cos x + \frac{5}{x} + 3\sqrt[5]{x^7} \right) \, dx$

4) $\int x^6 e^{2x} \, dx$

5) $\int x^3 \ln x \, dx$