

MATH 3B WORKSHEET 8

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1. QUICK REVIEW

1. What's the formula for integrating by parts? What's the process?

2. My acronym:

Trigonometric

Exponential

Power

Logarithmic

Inverse trigonometric

2. PRACTICE PROBLEMS

2.1. Set I.

- (1) $\int x \sin x dx$
- (2) $\int \ln t dt$
- (3) $\int \arcsin x dx$
- (4) $\int t e^{-t} dt$
- (5) $\int e^{-x} \cos x dx$
- (6) $\int e^{-2x} \sin \frac{x}{2} dx$

2.2. Set II.

- (1) $\int_0^{2\pi} t \sin(\omega t) dt$
- (2) $\int_{\pi/4}^{\pi/3} \frac{x}{\sin^2 x} dx$
- (3) $\int_1^4 \frac{\ln x}{\sqrt{x}} dx$
- (4) $\int_0^{\pi/2} e^{2x} \cos x dx$
- (5) $\int_1^2 x \log_2 x dx$
- (6) $\int_0^{\pi} (x \sin x)^2 dx$
- (7) $\int_{1/e}^e |\ln x| dx$

2.3. Set III.

- (1) $\int x \cos\left(\frac{x}{2}\right) dx$
- (2) $\int x^2 \cos x dx$
- (3) $\int x \sin x \cos x dx$
- (4) $\int \ln^2 x dx$
- (5) $\int x \ln(x-1) dx$
- (6) $\int (x^2 - 1) \sin(2x) dx$
- (7) $\int \frac{\ln^3 x}{x^2} dx$

2.4. Set IV.

- (1) $\int e^{\sqrt[3]{x}} dx$
- (2) $\int \cos(\ln x) dx$
- (3) $\int (\arcsin x)^2 dx$
- (4) $\int e^x \sin^2 x dx$
- (5) $\int x \ln^2 x dx$
- (6) $\int e^{\sqrt{3x+9}} dx$

3. QUIZZES

NAME:----- PERM:----- SECTION TIME:-----

Integrate

$$\int_1^e x \ln x dx$$