

6. Do WebAssign 7.2. (Always start with the WebAssign.)

7. Let $F(a)$ be the area under the graph of $y = x^2 e^{-x}$ between $x = 0$ and $x = a$ for $a > 0$. Find a formula for $F(a)$.

Is F an increasing or decreasing function?

Is F concave up or concave down for $0 < a < 2$?

8. Evaluate the integral $\int s^3 e^{s^2} ds$.

Check your answer using differentiation.

Use your work above to evaluate $\int_0^\pi s^3 e^{s^2} ds$ exactly.

Check your answer by evaluating the integral numerically (e.g. on a calculator).

9. Use integration by parts to find $\int e^x \sin(x) dx$.

10. Estimate $\int_0^{10} f(x)g'(x) dx$, given that $f(x) = x^2$ and that g is differentiable everywhere with values given by:

x	0	2	4	6	8	10
$g(x)$	2.3	3.1	4.1	5.5	5.9	6.1

$$\int_0^{10} f(x)g'(x) dx =$$

Tables for Integration

Section 7.3
August 30, 2016

Name:
Math 129 - 01

Review	Simplify quadratic polynomials by completing the square.
Review	Simplify rational functions by polynomial division.
Understand	Explain the organization of the table by the categorization of integrals based on their integrands.
Apply	Recognize the structure of an integrand and identify the corresponding table category and entry.
Apply	Use algebra to manipulate antiderivatives to match their corresponding table entry.
Synthesize	Use integral tables in conjunction with other methods to solve more complicated integrals.

1. Express $y = 4x^2 + 6x + 5$ in the form $y = a(x - h)^2 + k$ by completing the square.

3. Express $y = \frac{x^2 - x}{x^2 + 1}$ in the form $y = A + \frac{Bx + C}{x^2 + 1}$ by polynomial division.

2. Without solving the integrals, indicate which integral from the table is most suitable for the integrals below, (The table can be found in the back cover of the book. The first one has been done for you.)

$$\underbrace{\int x^3 \sin(5x) dx}_{III-15} \quad \int r^4 e^{3r} dr \quad \int \frac{1}{3 + y^2} dy$$

Quiz (Leave this space blank)