

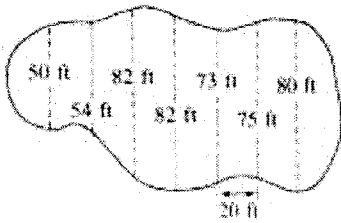
Practice Worksheet--Topics for College Calculus

1. Approximate using Simpson's Rule with $n = 4$: $\int_1^2 \frac{1}{1+x^3} dx$

0.254

2. To estimate the surface area of a pond, a surveyor takes several measurements. Estimate the surface area of the pond using Simpson's Rule.

measurement #	1	2	3	4	5	6	7	8	9
width in feet	0	50	54	82	82	73	75	80	0



10413.333 ft²

3. Evaluate the trig integral: $\int \sin^6 x \cos^3 x dx$ $\frac{1}{7} \sin^7 x - \frac{1}{9} \sin^9 x + C$

4. Evaluate the trig integral: $\int \sec^9 x \tan^5 x dx$ $\frac{1}{13} \sec^{13} x - \frac{2}{11} \sec^{11} x + \frac{1}{9} \sec^9 x + C$

5. Evaluate using trig substitution: $\int \frac{1}{x^2 \sqrt{4+x^2}} dx$ $-\frac{\sqrt{x^2+4}}{4x} + C$

6. Evaluate using trig substitution: $\int x^3 \sqrt{4-x^2} dx$ $-\frac{4}{3} (4-x^2)^{3/2} + \frac{1}{5} (4-x^2)^{5/2} + C$

7. Evaluate using trig tables: $\int \sqrt{9+x^2} dx$ $\frac{1}{2} (x \sqrt{x^2+9} + 9 \ln |x + \sqrt{x^2+9}|) + C$
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8. Evaluate using trig tables: $\int \frac{x^2}{\sqrt{9+4x^2}} dx$ $\frac{x}{8} \sqrt{4x^2+9} - \frac{9}{16} \ln |2x + \sqrt{4x^2+9}| + C$
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