

Practice for Quiz 10
Math 2580
Spring 2016

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If you can answer the following problems, you should be well-prepared for Quiz 10:

1. Find the following antiderivatives:

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

(d) $\int x \sin(x) dx$

(b) $\int \cos(x) dx$

(e) $\int \sin^2(x) dx$

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

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

2. Sketch the following rectangles in \mathbb{R}^2 :

(a) $[-1, 2] \times [0, 2]$

(b) $[1, 4] \times [-1, 1]$

3. For each of the rectangles from Problem 2, determine uniform partitions $x_0 < x_1 < x_2 < x_3$ of the x -interval into three sub-intervals and $y_0 < y_1 < y_2$ of the y -interval into two sub-intervals. Use these partitions to divide the given rectangle into six sub-rectangles R_{ij} , with $1 \leq i \leq 3$ and $1 \leq j \leq 2$.