Written Homework Problems §5.6

17 problems for 34 points

Problems in red are optional extra practice.

§5.6 #320,321,324,325,327,328,329,330,331,333,335,337,339,347,350,361

Problem A: Suppose the rate of growth of bacteria in a Petri dish is given by $p(t) = \frac{e^{0.2t}}{5}$ where t is given in hours and $p(t)$ is given in hundreds of bacteria per hour. If a culture starts with 1000 bacteria, find a function $P(t)$ that gives the number of bacteria in the Petri dish at any time t. How many bacterial are in the dish after 10 hours.

Problem B: $\displaystyle\int_1^2 \frac{5}{3x}\,dx$

Problem C: $\displaystyle\int_0^{1/3} 7e^{3x}\,dx$

Problem D: $\displaystyle\int_1^{25} \frac{e^{\sqrt{x}}}{\sqrt{x}}\,dx$

Problem E: $\displaystyle\int_0^1 \frac{x}{1+x^2}\,dx$

Problem F: $\displaystyle\int_0^1 \frac{1}{1+x^2}\,dx$

Problem G: In the last section, we learned to pick u to be something raised to a power or inside a trigonometric function. What additional ways to pick u did we learn in this section?