

Math 211-Final Exam Review Part 2

28. Evaluate  $\int_4^{25} \frac{4}{\sqrt{x}} dx$

29. Find the effective interest rate (APY) for 2.3% APR, compounded quarterly. Also, find the APY for 2.3% APR, compounded continuously. Round both answers to the nearest hundredth of a percent.

30. The marginal profit derived from producing  $q$  units of a product is  $P' = 9q^2 - 20q - 50$  [dollars per unit]. The total profit from producing the first 3 units is \$800. What is the profit from producing the first 6 units?

31. Find area of the region bounded by  $y = x^2 - 7$  and  $y = 6x$

32. Find area of the region bounded by  $f(x) = x^2 - 1$  and  $y = 5 - 4x - x^2$

33. Find the average value of  $f(x) = x^2 - 3x + 5$  over  $-1 \leq x \leq 2$

34. Given  $D(q) = 60 - 5q$  and  $S(q) = 4q - 21$ , find the equilibrium point.
35. Given an equilibrium point of (3,4) and demand  $D(q) = q^2 - 10q + 25$ , find the consumers' surplus.
36. Given an equilibrium point of (5,105) and supply  $S(q) = 9q + 60$ , find the producers' surplus.
37. Suppose money is transferred into an account at a constant rate of \$2,400 per year. If the account earns interest at an annual rate of 6% compounded continuously, how much will be in the account at the end of 5 years?
38. Experience shows that  $t$  years from now a 10-year franchise will be generating profit at a rate of  $f(t) = \$100,000$  per year. If the annual interest rate remains fixed at 4% compounded continuously, what is the present value of the franchise?