

Your name: _____ Student ID #

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1. (10 points) Evaluate

$$\int \frac{x^{18}}{(49 - x^2)^{\frac{21}{2}}} dx$$

2. (15 points) Evaluate

$$\int \frac{x^3 - 4}{x^2 - 2x - 3} dx$$

3. (15 points) Consider the integral

$$I = \int_0^1 \sqrt{1-x^2} dx.$$

(a) Find I (use geometry). (b) Find an approximation of I using Midpoint rule and Trapezoid rule with $n = 4$. (c) For both Midpoint and Trapezoid rules, calculate the absolute error between the estimate and the true value.