



4.5

(Day 2)

Integration By Substitution

Objective: 1. Use substitution to integrate.

2. Find the solution to the differential equation.

$$15. \int 5x (1-x^2)^{\frac{1}{3}} dx$$

$$= \left(-\frac{1}{2}\right) 5 \int -2x (1-x^2)^{\frac{1}{3}} dx$$

$$u = 1 - x^2$$

$$du = -2x dx$$

$$= -\frac{5}{2} \int u^{\frac{1}{3}} du$$

$$= -\frac{5}{2} \left(\frac{3}{4}\right) u^{\frac{4}{3}} + C$$

$$= \boxed{-\frac{15}{8} (1-x^2)^{\frac{4}{3}} + C}$$

19 341 # 31-51 odds