

Recitation # 5: Length of Curves & Surface Area

Group work:

Problem 1 Find the length of the following curves (length is in feet):

(a) $y = \frac{1}{6}x^3 + \frac{1}{2x}$ from $\left(2, \frac{19}{12}\right)$ to $\left(3, \frac{14}{3}\right)$.

(b) $x = \frac{1}{9}e^{3y} + \frac{1}{4}e^{-3y}$ from $\left(\frac{13}{36}, 0\right)$ to $\left(\frac{265}{288}, \ln 2\right)$.

Problem 2 Find the surface area of the surface generated by revolving the curve given by

(a) $y = \frac{1}{6}x^3 + \frac{1}{2x}$ from $\left(2, \frac{19}{12}\right)$ to $\left(3, \frac{14}{3}\right)$ about the x -axis.

(b) $x = \frac{1}{9}e^{3y} + \frac{1}{4}e^{-3y}$ from $\left(\frac{13}{36}, 0\right)$ to $\left(\frac{265}{288}, \ln 2\right)$ about the y -axis.
