

6. [10 points] The distance between two points  $(x_1, y_1)$  and  $(x_2, y_2)$  is given by

$$D = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}.$$

Consider the curve described by  $y = \sqrt{3x^2 - 3}$ , over the domain  $2 \leq x \leq 4$ . What is the average distance of the points on this curve to the point  $(2, 0)$ ?