

M1B/Schoenbrun Section 6.4-6.5 Arc Length, Average Value

1) Let  $f(x) = x^{3/2}$

Find the length of the function on the interval  $x \in [0, 44]$

2) Let  $x(t) = \cos t + t \sin t$  and  $y(t) = \sin t - t \cos t$

Find the length of the arc on the interval  $t \in [0, \pi]$

3) For  $f(x) = \sqrt{1+x}$  find the average value of the function on the interval  $[-1,1]$  and find  $c$  so that  $f(c) = \text{Avg}$

4) For  $f(x) = e^x$  find the average value of the function on the interval  $[-1,1]$  and find  $c$  so that  $f(c) = \text{Avg}$