

## Math 234 Discussion Worksheet - Nov 20

1. Compute  $\int_{\mathcal{C}} y ds$  where  $\mathcal{C}$  is the curve  $y = x^3, 0 \leq x \leq 1$ .
2. Suppose a wire  $\mathcal{C}$  is the quarter of the unit circle in the first quadrant, and is of constant density 1. Find the center of mass of the wire.
3. Compute  $\oint_{\mathcal{C}} x dx + y dy$  and  $\oint_{\mathcal{C}} -y dx + x dy$  where  $\mathcal{C}$  is the unit circle.