

1. §4.9, p.279, #40: Find  $f(x)$  given  $f'''(x) = \cos x$ ,  
 $f(0) = 1$ ,  $f'(0) = 2$  and  $f''(0) = 3$ .

2. §4.9, p.280, #56: A particle is moving with acceleration  
 $a(t) = t^2 - 4t + 6$ . Find the position of the particle if  
 $s(0) = 0$  and  $s(1) = 20$ .

3. §4.9, p.281, #68: A car braked with a constant deceleration of  
 $16 \text{ ft/s}^2$ , producing skid marks measuring  $200 \text{ ft}$  before coming to a  
stop. How fast was the car traveling when the brakes were first applied?

4. §5.1, p.298, #4: (a) Estimate the area under the graph of  
 $f(x) = \sqrt{x}$  from  $x = 0$  to  $x = 4$  using four uniform approximating  
rectangles and right end points. Sketch the graph and the rectangles.  
Is your estimate an underestimate or overestimate?  
(b) Repeat part (a) using left endpoints.

5. §5.1, p.299, #20: Determine a region whose area is equal to

$$\lim_{n \rightarrow \infty} \sum_{i=1}^n \frac{2}{n} \left( 5 + \frac{2i}{n} \right)^{10}.$$