0.1 Section 2.7

3 (a) 2     (b) 2

7 \[ y = \frac{1}{2} x + \frac{1}{2}. \]

11 (a) The particle is moving to the right when \( s \) is increasing; that is, on the intervals \((0, 1)\) and \((4, 6)\). The particle is moving to the left when \( s \) is decreasing; that is, on the interval \((2, 3)\). The particle is standing still when \( s \) is constant; that is, on the intervals \((1, 2)\) and \((3, 4)\).
(b) The velocity of the particle is equal to the slope of the tangent line of the graph. Notice that there is no slope at the corner points.

13 \(-24\) ft/s.

16 (a) Your average velocities should be: 0, 1, 3, 4 in ft/s.     (b) 2ft/s.

22 \[ f'(4) = \frac{1}{3}. \]

31 \[ 6a - 4 \]

35 \[ \frac{-1}{\sqrt{1 - 2a}} \]

51 (a) $20.25/unit, 20.05/unit     (b) $20/unit.

59 \( f'(0) \) does not exist because \( \lim_{h \to 0} \sin(1/h) \) d.n.e.

60 \( f'(0) = 0. \) Use the squeeze theorem!