Activity 2.1 – Derivatives of Quadratic Functions

1. (a) 19.4 ft/s

(b) 20.84 ft/s

(c) 20.984 ft/s

(d) 21 ft/s

(e) \( v(t) = 85 - 32t; \ v(2) = 21 \) ft/s.

(f) \( a(t) = -32 \) ft/s²

2. (a) \( f'(x) = 4x - 10; \ f''(x) = 4 \)

(b) \( y'(w) = -1 + w; \ y''(w) = 1 \)

(c) \( h'(r) = 32r - 24; \ h''(r) = 32 \)

3. \( P'(t) = 8t + 34 \) bacteria per hour; \( P'(2) = 50 \) bacteria per hour

4. (a) \( f(4) = 5 \)

(b) \( f'(4) = -2 \)

(c) \( y - 5 = -2(x - 4) \)