

ANSWER KEY

1. (a) $1/6$ (b) 50, (c) ∞ .

2. (a) 6
(b) DNE
(c) 0
(d) DNE
(e) 0

3. See attached page

4. (a) all points except $x = 1$
(b) all points except $x = -1, 1$
(c) all points except $x = -1, 0, 1, 3$

5. See attached page.

6. $f'(x) = 60x^4 + 20x^3 + 2x + 2$, $\int f(x)dx = 2x^6 + x^5 + \frac{1}{3}x^3 + x^2 + x + C$

7. (a) $\frac{-2}{(x-1)^2}$ (b) $\frac{3}{2}\sqrt{x}$ (c) $\frac{-(3x^2 + 6x + 2)}{(x^3 + 3x^2 + 2x + 1)^2}$

8. $v(t) = 6t - 2$; $v = 0$ when $t = \frac{1}{3}$, $x = \frac{2}{3}$

9. $x(t) = x_0 + 6t - t^3/6$, so $t = 6$.