Sections 3.1, 2.4, 2.6

§ 3.1

24) By 23, $A(t) = 1000 - 1000e^{-t/1000}$
$c(t) = 2 - 2e^{-t/1000}$

$c(5) = 0.0975 \text{ lb/gal}$
$\lim\limits_{t \to \infty} c(t) = 2.$

$t = 100 \ln 2 \approx 69.3 \text{ min}$
when $c(t) = 1.$

36) a. $v(t) = -32t + 300$
b. $s(t) = -16t^2 + 300t$
max height $\approx 1406.25 \text{ ft}$
when $t_a = 9.375$

38) $v_p(5) = 16.0106 \text{ ft/s}$

$\lim\limits_{t \to \infty} v_p(t) = 16 \text{ ft/s}$

$t = 785.6s = 13.1 \text{ m}$
after parachute opens.
$\overline{13.34 \text{ minutes after exit}}$
the plane.

§2.4

2) Not exact - Why?

6) Not exact.

8) $-y + y \ln x + x \ln x = c$

12) $x^3 y + xe^y - y^2 = c.$

22) $e^x + xy + 2y + ye^y - e^y = 3$

28) $k = 9/2$

§2.6

6) $h = 0.1$

x_n	y_n
0.00	1.0000
0.10	1.1000
0.20	1.2220
0.30	1.3753
0.40	1.5735
0.50	1.8371