6.1

(57) $\frac{dy}{dx} = -\sin x$

$\int dy = \int -\sin x \, dx$

$y = \cos x + C$

(42)

(x_n, y_n)	$x + \Delta x$	$\frac{dy}{dx}$	$y_n + \frac{dy}{dx}\Delta x$	(x_{n+1}, y_{n+1})
$(1,3)$	$1 + .1$	2	$3 + 2(.1)$	$(1.1, 3.2)$
$(1.1, 3.2)$	$1.1 + .1$	2.2	$3.2 + 2.2(.1)$	$(1.2, 3.42)$

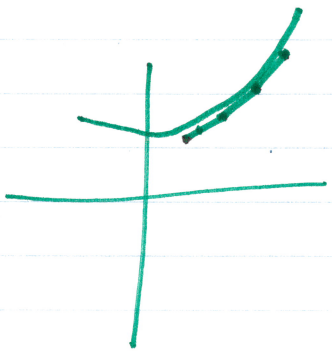
6.1

(42) $\frac{dy}{dx} = y - 1$ $\quad y = 3$ WHEN $x = 1$ $\quad \Delta x = .1$

$3 + 2(.1) = 3.2$ (APPROXIMATION 1.1)

$3.2 + 2.2(.1) = 3.42$ (APPROXIMATION 1.2)

$3.42 + 2.42(.1) = \boxed{3.662}$ (APPROXIMATION 1.3)



(47) $\frac{dy}{dx} = x - y$ $\quad y = 1$ WHEN $x = 2$ $\quad \Delta x = -.1$

$1 + 1(-.1) = .9$ (APPROXIMATION (1.9))

$.9 + 1(-.1) = .8$ (APPROXIMATION (1.8))

$.8 + 1(-.1) = \boxed{.7}$ (APPROXIMATION 1.7)

6.1

(23) $\int_x^{x} e^{\cos t}\, dt$

(17) $\frac{dy}{dt} = \frac{1}{1+t^2} + 2^t \ln 2$

$\int dy = \int \left(\frac{1}{1+t^2} + 2^t \ln 2\right) dt$

$y = \arctan t + 2^t + C$

$3 = \arctan 0 + 2^0 + C$

$3 = 0 + 1 + C$

$2 = C$

$y = \arctan t + 2^t + 2$