Mathematics 122

Quiz 34 Name: Key

You must show your work to get full credit.

1. State the form of the Fundamental Theorem of Calculus given in the homework. (Recall this involves both a sentence and a formula.)

The change of a function F between $x=a$ and $x=b$ is the integral of the rate function. In symbols:

$$F(b) - F(a) = \int_a^b F'(x)\,dx$$

2. If $F'(t) = 5(1.2)^t$ and $F(3) = 6$ find the following:

$F(4) =$ 15.478

$F(4.7) =$ 23.219

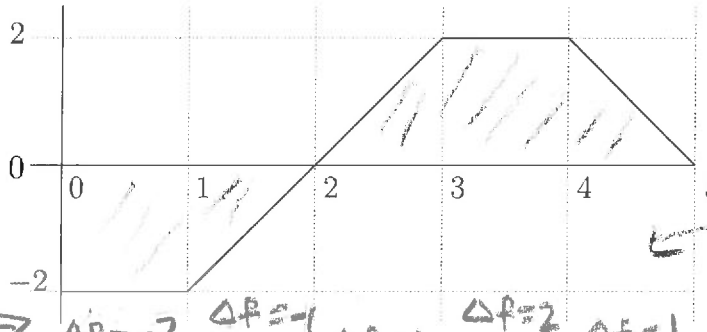
$F(6) =$ 40.499

$$F(4) = F(3) + \int_3^4 5(1.2)^t\,dt = 15.478$$

$$F(4.7) = 6 + \int_3^{4.7} 5(1.2)^t\,dt = 23.219$$

$$F(6) = 6 + \int_3^6 5(1.2)^t\,dt = 40.499$$

3. The following gives the graph if a derivative $y = f'(x)$. Fill in the table of values given that $f(0) = 3$.



1 box has area = 2

Change in f → $\Delta f = -2$ $\Delta f = -1$ $\Delta f = 1$ $\Delta f = 2$ $\Delta f = 1$

x	0	1	2	3	4	5
$f(x)$	3	1	0	1	3	1
		−2	−1	+1	+2	+1