Calculating Antiderivatives - Sols

1) $\frac{1}{2}x^4 - \frac{4}{3}x^3 + \frac{3}{2}x^2 + x + C$

2) $3e^x + C$

3) $\dfrac{2.2(1.03)^x}{\ln(1.03)} + C$

4) $2\ln|x| + C$

5) $-\frac{1}{x} + \frac{2}{3}x^{3/2} + C$

6) $\frac{1}{6}x^2 + \frac{1}{3}\ln|x| + \dfrac{(.3)^x}{\ln(.3)} + C$

7) $F(x) = x^2 + x + 2$

8) $F(x) = 3\ln|x| + \frac{1}{2}x^2 + C$

   $F(2) = 3\ln|2| + \frac{1}{2}(2)^2 + C = 5$

   $C = 3 - 3\ln|2|$

   $F(x) = 3\ln|x| + \frac{1}{2}x^2 + 3 - 3\ln|2|$

Applications

1) (a) $A(t) = \dfrac{0.12(1.08)^t}{\ln(1.08)} + C$ $t = 37$

   $A(37) = \$27.3\,\text{mil}$

   $A(0) = 2$, $C = 2 - \dfrac{.12}{\ln(1.08)}$ (b) Total change: $\$25.3\,\text{mil}$