122 HW #3

7.1 # 10, 14, 33, 48

7.2 # 28

7.1 #10 $\int 5x^2 - 6x + 3\,dx = \frac{5}{3}x^3 - 3x^2 + 3x + C$

7.1 #14 $\int t^{1/4} + \pi^{1/4}\,dt = \frac{4}{5}t^{5/4} + \pi^{1/4}t + C$

$\pi^{1/4}$ is a constant, so don't do $\frac{1}{5}\pi^{5/4}$

7.1 #33 $\int \frac{1+2t^3}{4t}\,dt = \int \frac{1}{4t} + \frac{1}{2}t^2\,dt$

$= \int \frac{1}{4}\cdot\frac{1}{t} + \frac{1}{2}\cdot t^2\,dt = \frac{1}{4}\ln t + \frac{1}{6}t^3 + C$

7.1 #48 $C'(x) = x^{1/2}$ 16 cost \$45

$C(x) = \int C'(x)\,dx = \int x^{1/2}\,dx = \frac{2}{3}x^{3/2} + C$

$C(16) = 45$, so

$45 = \frac{2}{3}\cdot 16^{3/2} + C$

so $C = 7/3$

$C(x) = \frac{2}{3}x^{3/2} + \frac{7}{3}$

7.2 #28 $\int \frac{-4x}{x^2+3}\,dx = -4\int \frac{x}{x^2+3}\,dx$

$u = x^2+3$

$du = 2x\,dx$

$\frac{1}{2}du = x\,dx$

$= -4\int \frac{1}{u}\,x\,dx = -4\int \frac{1}{u}\cdot\frac{1}{2}\,du$

$= -2\int \frac{1}{u}\,du = -2\ln u + C = -2\ln(x^2+3) + C$