Gavin McKay

1.A $\int_0^1 (8-(-7x+8))\,dx + \int_1^2 (8-(x^3))\,dx$

1. B $\sqrt[3]{y}=x$ $\quad -\frac{y-8}{7}=x$ $\quad$ Bounds $(1,8)$

$\sqrt[3]{1}=1$

$-\frac{1-8}{7}=1$

$$\int_1^8 \left(\sqrt[3]{y}-\left(-\frac{y-8}{7}\right)\right)dy$$

2. $\sqrt{y}=x$ $\quad \sqrt{y}=\frac{y^2}{8}$ $\quad 8\sqrt{y}=y^2$

$y(y^2-64)$ $\quad y=0,8$ $\quad 64y=y^3$

$R=\frac{y^2}{8}+1$ $\quad R=(\sqrt{y}+1)^2-\left(\frac{y^2}{8}\right)^2$

$$\pi\int_0^8 (\sqrt{y}+1)^2-\left(\frac{y^2}{8}+1\right)^2 dy$$

3. A $2\pi\int_1^9 x(3-\sqrt{x})\,dx$

$y^2=x$

B. $2\pi\int_1^3 (4-y)(y^2)\,dy$

4 $V(t)=10\cos(\pi t)$

$+\ 1/2$

$$+\int_0^{1/2} 10\cos(\pi t) + -\int_{1/2}^{3/2} 10\cos\pi t$$

$\left.\frac{10\sin(\pi t)}{\pi}\right|_0^{\frac{1}{2}}$ $\left(\frac{10}{\pi}-0\right)+$

$-\left(\left.\frac{10\sin(\pi t)}{\pi}\right|_{1/2}^{3/2}\right)-\left(\left(\frac{-10}{\pi}\right)-\frac{10}{\pi}\right)$

$-\left(-\frac{20}{\pi}\right)$

$\frac{10}{\pi}+\frac{20}{\pi}$

$\frac{30}{\pi}$

e^{2x}

$$\int \frac{100e^{-\frac{1}{4}x}}{-\frac{1}{4}} \cdot \frac{4}{1}$$

Gavin McRoy

$$n(t) = 1500 + \int_0^t \left(100e^{-\frac{x}{4}}\right) dx$$

$$= 1500 + \left(-400e^{-1/4x}\right|_0^t -400e^{-\frac{t}{4}} - 400$$

$$n(t) = 1100 - 400e^{-\frac{t}{4}}$$