1) $\int_{-1}^{2}(x+x^4)dx = \frac{x^2}{2}+\frac{x^5}{5}\Big|_{-1}^{2} = \left(2+\frac{32}{5}\right)-\left(\frac{1}{2}-\frac{1}{5}\right)$

$\frac{3}{2}+\frac{32}{5} = \frac{15+64}{10} = \frac{81}{10}$

2) $\int_0^2 \sin t\,dt = -\cos t\Big|_0^2 = 1.416$

3) $\int_{\frac{1}{2}}^{1}\frac{dx}{2x} = \frac{1}{2}\ln x\Big|_{\frac{1}{2}}^{1} = \frac{1}{2}\left(\ln 1-\ln\frac{1}{2}\right)$

$\frac{1}{2}(0+\ln 2)$

$\frac{1}{2}\ln 2 = .347$

4) $v(t) = 2t-4 \qquad 0 \le t \le 6$

$$\text{disp} = s(t) = \int_0^6 (2t-4)\,dt = t^2-4t\Big|_0^6 = 12$$

$2t-4=0$

$2t=4$

$t=2$

$$\int_0^2 (2t-4)\,dt = t^2-4t\Big|_0^2 = -4$$

$$\int_2^6 (2t-4)\,dt = t^2-4t\Big|_2^6 = 12-(-4) = 12+4 = 16$$

$$\text{dist} = 16+4 = 20$$

5) $\frac{1}{\frac{3\pi}{2}-\frac{\pi}{2}} \int_{\pi/2}^{3\pi/2} \cos 2x\,dx = \frac{1}{\pi}\left(\frac{1}{2}\sin 2x \Big|_{\pi/2}^{3\pi/2}\right)$

$= \frac{1}{2\pi}\left(\sin 3\pi - \sin \pi\right)$

$= 0$