1) Diket : $U : u^2 + 2u$

$u : t^3 - 3$

$$\frac{dy}{du} = 2u + 2$$

$$\frac{du}{dt} = 3t^2$$

Jawab : $\frac{dy}{dt} = \frac{dy}{du} \cdot \frac{du}{dt}$

$: (2u + 2) \cdot 3t^2$

$: 2(u + 1) \cdot 3t^2$

$: 2(t^3 - 3 + 1) \cdot 3t^2$

$: 6t^2(t^3 - 2)$

$: 6t^5 - 12t^2$

2) Diket : $P = -1200 + 30q - 0,002q^2$

q = donat yg terjual

Hubungan antara pekerja & donat = $100n$

D.? : Keuntungan Pekerja, $q = 1000$

Jawab : $f(u) = -0,002\ q^2 + 30q = -1200$

$f'(u) = -0,004\ q + 30 = 0$

$u = \frac{-30}{-0,004}$

$u = 7.500$

$100n = 7.500$

$n = 75$

$f(u) = -0,002\ q^2 + 30q - 1200$

$= -0,002\ (1000)^2 + 30(1000) - 1200$

$= -2000 + 30.000 - 1200$

$= 26.800$

$\frac{= 26.800}{n} = \frac{26.800}{75}$

$= 357$ → ratusan ribu rupiah

Rp. 357.000

(3) $\int 2x(x^2 - \frac{1}{2}x)\,dx = \int (2x^3 - 1)\,dx$

$= \frac{2}{4}x^4 - x + c$

$= \frac{1}{2}x^4 - x + c$

(4) $\int_0^{\frac{\pi}{2}} 3 \sin x\,dx = 3\int_0^{\frac{\pi}{2}} \sin x\,dx$

$= [-3 \cos x]_0^{\frac{\pi}{2}}$

$= (-3 \cos \frac{\pi}{2}) - (-3 \cos 0)$

$= (-3 \times 0) - (-3 \times 1)$

$= 0 + 3 = 3$

(5) $\int u \cdot dv = u.v - \int v \cdot du$

Andai $u = x$ | $dv = \sin 3x\,dx$

Maka $du = dx$ | $v = \frac{-1}{3} \cos 3x$

Jawab $= \int x \sin 3x\,dx$

$= x(-\frac{1}{3} \cos 3x) - \int -\frac{1}{3} \cos 3x\,dx)$

$= -x/3 \cos 3x + \frac{1}{3}(\frac{1}{3}) \sin 3x + 3$

$= -x/3 \cos 3x + \frac{1}{9} \sin 3x + c$