6. $\int_{x=-3}^{x=3} \int_{y=0}^{y=\sqrt{9-x^2}} \cos\sqrt{x^2+y^2}\, dy\, dx$

$= \int_{\theta=0}^{\theta=\pi} \int_{r=0}^{r=3} (\cos\sqrt{r^2})\, r\, dr\, d\theta$

S	D	I
+	r	cos r
−	1	sin r
+	0	−cos r

$= \int_{\theta=0}^{\theta=\pi} \int_{r=0}^{r=3} r\cos r\, dr\, d\theta$

$= \int_{\theta=0}^{\theta=\pi} \left[r\sin r + \cos r \right]_{r=0}^{r=3} d\theta$

$= \int_{\theta=0}^{\theta=\pi} \left[3\sin 3 + \cos 3 - (0\sin 0 + \cos 0) \right] d\theta$

$= \int_{\theta=0}^{\theta=\pi} \left[3\sin 3 + \cos 3 - 1 \right] d\theta$

$= (3\sin 3 + \cos 3 - 1) \int_{\theta=0}^{\theta=\pi} d\theta$

$= (3\sin 3 + \cos 3 - 1) \left[\theta \right]_{\theta=0}^{\theta=\pi}$

$= (3\sin 3 + \cos 3 - 1)[\pi - 0]$

$= \pi(3\sin 3 + \cos 3 - 1)$