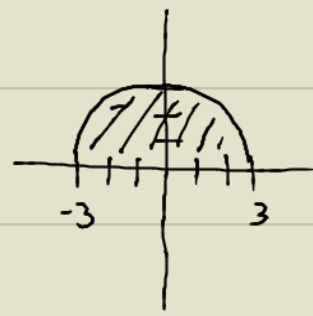


$$6. \int_{x=-3}^{x=3} \int_{y=0}^{y=\sqrt{9-x^2}} \cos \sqrt{x^2+y^2} \, dy \, dx$$



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

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

<u>S</u>	<u>D</u>	<u>I</u>
+	→ r	cos r
-	→ 1	sin r
+	0	-cos r

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

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

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

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

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

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

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