Subject: Session 34

Year. Month. Date. ( )

1. $\frac{\partial w}{\partial r} = \frac{\partial w}{\partial x}\frac{\partial x}{\partial r} + \frac{\partial w}{\partial y}\frac{\partial y}{\partial r}$

$= (3x^2y + y^3)\cos\theta + (3y^2x + x^3)\sin\theta$

2. $dw = w_x\,dx + w_y\,dy$

$= w_x(x_r\,dr + x_\theta\,d\theta) + w_y(y_r\,dr + y_\theta\,d\theta)$

$= w_x(\cos\theta\,dr - r\sin\theta\,d\theta) + w_y(\sin\theta\,dr + r\cos\theta\,d\theta)$

3. $x|_{(2,\pi/4)} = \sqrt{2}$

$y|_{(2,\frac{\pi}{4})} = \sqrt{2}$

$\frac{dw}{dr}|_{(2,\frac{\pi}{4})} = 16$