C.W.V
Letrile
Wilgens
2/27/10

Chain Rule

(a) $\cos^5(e^{3x})$

$\frac{d}{dx}\cos^5(e^{3x}) = (\cos(e^{3x}))^5$

$= 5\cos^4(e^{3x}) \cdot \frac{d}{dx}(\cos(e^{3x}))$

$= 5\cos^4(e^{3x}) \cdot (-\sin(e^{3x})) \cdot \frac{d}{dx}(e^{3x})$

$= -5\cos^4(e^{3x}) \cdot \sin(e^{3x}) \cdot e^{3x} \cdot \frac{d}{dx}(3x)$

$= -5\cos^4(e^{3x}) \cdot \sin(e^{3x}) \cdot e^{3x}(3)$

$= -15e^{3x}\cos^4(e^{3x}) \cdot \sin(e^{3x})$