11. $g(t) = \dfrac{1}{(t^4 + 1)^3}$

$g = (t^4+1)^{-3}$

$g(u) = u^{-3}$

$u = t^4 + 1$

$g' = -3(t^4 + 1)^{-4}(4t^3)$

$\dfrac{dg}{du} \cdot \dfrac{du}{dx}$

$g' = \dfrac{-3(4t^3)}{(t^4+1)^4}$

15. $y = xe^{-kx}$

$= (x)(e^{(-kx)})$

$(2x)' = 2$

$(-kx)' = -k$

$\dfrac{dy}{dx} = (x)'e^{-kx} + (e^{-kx})'(x)$

$= 1 \cdot e^{-kx} + e^{-kx}(-k)x$

$\dfrac{dy}{dx} = e^{-kx} - kxe^{-kx}$

17. $g(x) = (1 + 4x)^5(3 + x - x^2)^8$

$g' = \left((1+4x)^5\right)'(3+x-x^2)^8 + \left((3+x-x^2)^8\right)'(1+4x)^5$

$= 5(1+4x)^4 \cdot 4(3+x-x^2)^8 + 8(3+x-x^2)^7(1-2x)(1+4x)^5$

$= 4(1+4x)^4(3+x-x^2)^7\left(\begin{matrix}15+5x-5x^2-16x^2+4x+2 \\ 5(3+x-x^2)+2(1-2x)(1+4x) \\ -8x^2+2x+1\end{matrix}\right)$

$= 4(1+4x)^4(3+x-x^2)^7(-21x^2+9x+17)$

19. $y = (2x - 5)^4(8x^2 - 5)^{-3}$

$y' = \left((2x-5)^4\right)'(8x^2-5)^{-3} + \left((8x^2-5)^{-3}\right)'(2x-5)^4$

$= 4(2x-5)^3 \cdot 2(8x^2-5)^{-3} - 3\cdot(8x^2-5)^{-4}(16x)(2x-5)^4$

if $x=0$

$= 4(-5)^3 2(-5)^{-3} - 3(-5)^{-4} \cdot 0 \cdot \sim$

$= 8$