



ICE - Derivatives of Exponentials

Calculate formulas for derivatives of the functions given in the table below.

Function	Derivative
$g(t) = 12^t + t^{12}$	
$f(x) = e^x + x^e$	
$h(s) = \pi^2 + \pi^s$	
$j(x) = e^4$	
$g(z) = (\ln(6))6^z$	
$p(s) = (\ln(7))^s$	
$q(t) = (\sqrt{9})^t$	
$u(x) = \frac{3^x}{3} + \ln(3)x^3$	
$v(t) = e^{\ln(t)}$	
$z(x) = e^{3x}$	

(a) $g'(t) = \ln(12) \cdot 12^t + 12t^{11}$

(b) $f'(x) = e^x + e \cdot x^{e-1}$

(c) $h'(s) = \ln(\pi) \cdot \pi^s$

(d) $j'(x) = 0$

(e) $g'(z) = \ln(6) \cdot \ln(6) \cdot 6^z$

(f) $p'(s) = \ln(\ln(7)) \cdot (\ln(7))^s$

(g) $q'(t) = \ln(\sqrt{9}) \cdot (\sqrt{9})^t$

(h) $u'(x) = \frac{\ln(3)}{3} \cdot 3^x + \ln(3) \cdot 3x^2$

(i) $v'(t) = 1$

(j) $z'(x) = 3 \cdot e^{3x}$