Problems for Gateway #4: Derivatives of Exponential Functions

1. Find the derivative of: $f(x) = 3 \cdot 7^x$.
2. Find the derivative of: $g(s) = 2 \cdot 4^s$.
3. Find the derivative of: $k(x) = 5 \cdot 5^x$.
4. Find the derivative of: $f(p) = 8^p$.
5. Find the derivative of: $m(t) = 12 \cdot 9^t$.
6. Find the derivative of: $n(x) = 10 \cdot (0.1)^x$.
7. Find the derivative of: $q(x) = \ln(3) \cdot 3^x$.
8. Find the derivative of: $f(x) = (\ln(2))^x$.
9. Find the derivative of: $j(p) = 1^p$.
10. Find the derivative of: $w(x) = e^x$.

ANSWERS:

1. $f'(x) = 3*\ln(7)*7^x$.
2. $g'(s) = 2*\ln(4)*4^s$.
3. $k'(x) = 5*\ln(5)*5^x$.
4. $f'(p) = \ln(8)*8^p$.
5. $m'(t) = 12*\ln(9)*9^t$.
6. $n'(x) = 10*\ln(0.1)*(0.1)^x$.
7. $q'(x) = \ln(3)*\ln(3)*3^x$.
8. $f'(x) = \ln(\ln(2))*(\ln(2))^x$.
9. $j'(p) = 0$.
10. $w'(x) = e^x$.