Compute the following derivatives. In these problems $a$, $b$, and $c$ are constants.

1. $y = 3 \cdot 5^x$ 
   \[ y' = \] 

2. $A = 6e^r$ 
   \[ \frac{dA}{dr} = \] 

3. $w = 3 \ln(z)$ 
   \[ \frac{dw}{dz} = \] 

4. $C(q) = 5a\sqrt{q} + b \cdot 3^q$ 
   \[ C'(q) = \] 

5. $F(t) = 5ae^t + 6c\ln(t)$ 
   \[ F'(t) = \]