1. 1

2. (a) $2 \tan x$
   
   (b) $x^\sin x \left( \frac{\sin x}{x} + \ln x \cos x \right)$

3. (a) $\frac{2x^2}{2\ln 2} + c$
   
   (b) $\frac{\ln(x^2+9)}{2} + 3 \arctan \left( \frac{x}{3} \right) + c$

4. (a) 0
   
   (b) 1
   
   (c) 0

5. $\ln(\ln(17))$

6. $y(x) = 2 - x$