Find the derivative of each function

1. $f(x) = \tan(\sqrt{x^2 + 1})$

2. $f(x) = \cos(\sec(x) + 1)$

3. $f(x) = \sec(x^2 + 3x)$

4. $f(x) = \ln(\sin(x))$

5. $f(x) = e^{x^2 \sin(x)}$

6. $f(x) = e^{5x}\sqrt{3 - \ln(x)}$

7. $f(x) = 3^{\sqrt{\sin(x)}}$

8. $f(x) = \ln(x^2 + 1)\cos\left(\dfrac{e^{3x}}{2x + 1}\right)$

13. Find the second derivative of $f(x) = e^{\sec(x)}$

14. Find an antiderivative of each function

    (a) $f(x) = 3x^2 \cos(x^3)$ *Hint: Think Chain Rule*

    (b) $g(x) = 2x \cos(e^x) - x^2 \sin(e^x) e^x$ *Hint: Think Product Rule & Chain Rule*

    (c) $h(x) = \dfrac{2x + 3}{x^2 + 3x + 5}$ *Hint: Think Chain Rule*