

**Problem.** Consider the function  $f(x) = \sqrt{-2 + \sqrt{5 + x^2}}$ .

- (a) What is the domain of  $f(x)$ ?
- (b) Is  $f(x)$  differentiable at every point of its domain? If it is not differentiable at some points, explain why.
- (c) Compute the equation of the tangent line to  $f(x)$  at  $x = 2$ . Hint: you don't need to simply the formula for  $f'(x)$ !