MAT 342, Quiz 2, 09/23

1. Write down the Cauchy–Riemann equations for a function $f(z) = u(x,y) + iv(x,y)$, where $z = x + iy$. You do not have to explain or justify anything.

2. Use the Cauchy–Riemann equations to determine at what points z the function $f(z) = z \operatorname{Re} z$ is differentiable.

3. Use directional limits to determine at what points the function $f(z) = \operatorname{Im} z$ is differentiable.

4. Is $\cos(i)$ a real number? Justify your answer.