

Quiz-1

- ① If  $z = u^2 + v^2$  and  $u = at$ ,  $v = 2at$  find  $\frac{dz}{dt}$ .
- ② If  $u = (\sqrt{x} + \sqrt{y})^5$ , find  $x^2 \frac{\partial^2 u}{\partial x^2} + 2xy \frac{\partial^2 u}{\partial x \partial y} + y^2 \frac{\partial^2 u}{\partial y^2}$ .
- ③ What is the degree of the hom. fun.  $u = \frac{x^2(x-y)^{1/3}}{(x^2+y)^{2/3}}$ ?
- ④ Evaluate  $\lim_{(x,y) \rightarrow (0,0)} \frac{xy}{x^2+y}$ .
- ⑤ If  $x = e^u \cos v$  and  $y = e^u \sin v$  find  $\frac{\partial(u,v)}{\partial(x,y)}$ .