

## Problems: Non-independent Variables

1. Find the total differential for  $w = zxe^y + xe^z + ye^z$ .
2. With  $w$  as above, suppose we have  $x = t$ ,  $y = t^2$  and  $z = t^3$ . Write  $dw$  in terms of  $dt$ .
3. Now suppose  $w$  is as above and  $x^2y + y^2x = 1$ . Assuming  $x$  is the independent variable, find  $\frac{\partial w}{\partial x}$ .

MIT OpenCourseWare  
<http://ocw.mit.edu>

18.02SC Multivariable Calculus  
Fall 2010

For information about citing these materials or our Terms of Use, visit: <http://ocw.mit.edu/terms>.