PH422: Static Fields
Quiz 2

The quiz on Monday, January 13, will ask you to find the differential of some simple functions.

If you need some review, please read: `https://physics.oregonstate.edu/mathbook/GSF/zap.html` Note: This section of the book is being rewritten this weekend to include more worked examples. Check back on Sunday.

Find the differential of the following functions:

1. $y = \sin kx,$ for k a constant
   Solution: $dy = k \cos kx \, dx$

2. $f = xyz$
   Solution: $df = yz \, dx + xz \, dy + xy \, dz$

3. $R = e^{B^2 + C^2}$
   Solution: $dR = e^{B^2 + C^2} \left(2B \, dB + 2C \, dC \right)$

4. $V = \ln \sqrt{1 + x^2}$
   Solution: $dV = \frac{1}{\sqrt{1+x^2}} \frac{1}{2} \frac{1}{\sqrt{1+x^2}} 2x \, dx$