Homework Set 9

2.8: Differentials

For questions 1 – 4, compute the differential of the following functions.

1. $y = \sqrt{x}$

2. $y = \sqrt{u}e^{-u}$

3. $y = \arctan(\ln t)$

4. $y = x^5 - 4x^3 + x^2 + 8$

5. The surface area of a sphere is given by $A = \frac{4}{3}\pi r^2$. Find dr when $r = 3$.