

Linearization and Differentials

Directions: For 1-5, use linearization to approximate the given value. For 6-10, use differentials to find what is asked for.

1. $\sqrt{35}$

2. $\ln(2.8)$

3. $\sin(0.1)$

4. $\sqrt[3]{999}$

5. $\tan(0.8)$

6. $y = x^3 - 2x + 5$; $x = 3$, $dx = 0.02$, find dy

7. $y = \sin(x^2 - 1)$; $x = 1$, $dx = 0.01$. find dy

8. $5 + x^2y = y + x^3y$; $x = 2$; $dx = -0.02$, find dy

9. About how much does the volume of a sphere change if the radius increases from 3cm to 3.1cm?

10. About how much does the area of an equilateral triangle decrease if the length of each side decreases from 9 inches to 8.8 inches?