

Math 150 Practice for Test 3

1. Find $f'(x)$ (and do not simplify!) if:

a. $f(x) = (3x^5 - x)^3 (2x^3 - 4)^2$

b. $f(x) = \sec^3 x$

2. Find y''' if $y = \sin(3x)$.

3. The side of a cube is measured with a possible percentage error of $\pm 2\%$. Use differentials to estimate the percentage error in the volume.

4. Use implicit differentiation to find $\frac{dy}{dx}$ if $3x^2y = \sqrt{x \sin y} + 5x$.

5. A 13 ft ladder is leaning against a wall. If the top of the ladder slips down the wall at a rate of 3 ft/sec, how fast will the foot be moving away from the wall when the top is 5 ft above the ground?