

MAT 129 – 003

Fall 2009

Test Two

Calculators may not be used on this test.

Show all work.

1. Determine $f'(x)$ where $f(x) = x^3 \cos x$.
2. Determine $f'(x)$ where $f(x) = \tan^2(\sin x)$.
3. Determine $f'(x)$ where $f(x) = (x^3 + 4x)^7$.
4. Determine $f'(x)$ where $f(x) = (1 + 4x)^5 (3 + x - x^2)^8$.
5. Determine $f'(x)$ where $f(x) = \frac{x}{\sqrt{7 - 3x}}$.
6. Determine $f'(x)$ where $f(x) = x \sin \sqrt{x}$.
7. Determine y' where $x^2 y^2 + x \sin y = 4$.

Problems 8 and 9 are on the other side.

8. Determine y' and y'' where $y = (x^3 + 1)^{2/3}$

9. A boat is pulled into a dock by a rope attached to the bow of the boat and passing through a pulley on the dock that is 1 m higher than the bow of the boat. If the rope is pulled in at a rate of 1 m/s, how fast is the boat approaching the dock when it is 8 m from the dock?