

VALENCIA COMMUNITY COLLEGE

Calculus 1 MAC 2311**List of Topics for Test 2**

- 1) Rules of differentiation.
- 2) Derivatives of trig. functions.
- 3) Chain rule.
- 4) Implicit differentiation.
- 5) Derivatives of inverse functions.
- 6) Derivatives of Log. and Exp. Functions.
- 7) Rates of change.
- 8) Application of exponential functions

Some specifics:

- 1) Find $\frac{dy}{dx}$ by implicit differentiation.

a) $x^2 \cos y + \sin 2y = xy$

b) $\cos xy = 1 - x^2$

- 2) Find the equation of tangent line to $x^3 + y^3 = y + 21$ at (3, -2)

3) A balloon is rising at a constant speed of 5 ft/s. A boy is cycling along a straight road at a speed of 15ft/s. When he passes under the balloon, it is 45 ft above him. How fast is the distance between the boy and the balloon increasing 3 s later?

- 4) Related rate problems similar to problems done in class.

- 5) Problems to find distance, velocity, and acceleration.(such as # 1-4 form section 3.7.