"FILL IN THE BLANKS" NAME: _____ PERIOD: ___

to Complete Sheet #211.

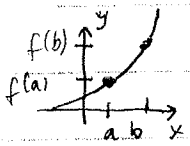
DEFINITIONS AND NOTATION FOR DERIVATIVES AND MOTION

CSV Chapter 2.1-2.5.

FUNCTIONS IN GENERAL

Let $y = f(x)$

- Average Rate of Change from $x=a$ to $x=b$:



- Instantaneous Rate of Change
  - = Rate of change at $x=a$
  - = Slope of curve at $x=a$
  - = Slope of tangent line at $x=a$
  - = DERIVATIVE at $x=a$:

If limit exists, f is DIFFERENTIABLE at $x=a$.

- DERIVATIVE FUNCTION

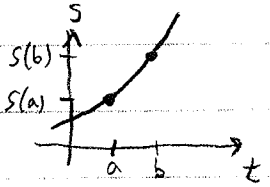
- Difference Quotient

- SECOND DERIVATIVE

MOTION OF A PARTICLE ALONG A LINE

Let $s(t)$ = POSITION at time t.

- Average velocity from $t=a$ to $t=b$:



- Change in time:
- DISPLACEMENT from $t=a$ to $t=b$
  - = Net change in position:
- DISTANCE = total length traveled ≥ 0.
- Instantaneous VELOCITY at $t=a$:

- SPEED:
- VELOCITY as a function of time

- ACCELERATION