

DATE: \_\_\_\_\_

### Tangent Line Problems

1) For  $f(x) = x^2 - 8x + 9$ ,

a) find the average rate of change on  $[2,3]$ .

b) find the instantaneous rate of change at  $x = 3$ .

2) Find the equation of the line tangent to  $f(x) = x^3 + x$  at  $(2,10)$ .

3) Derive the formula for the slope of the curve of  $f(x) = \frac{1}{1-x}$ .