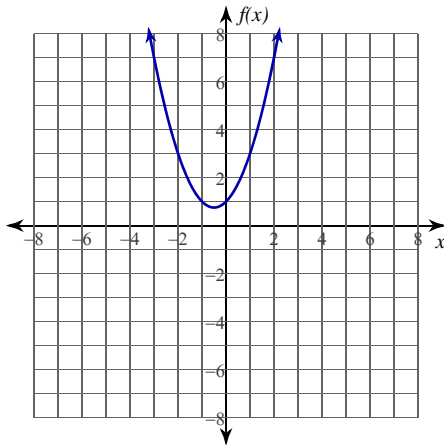


Instantaneous Rates of Change

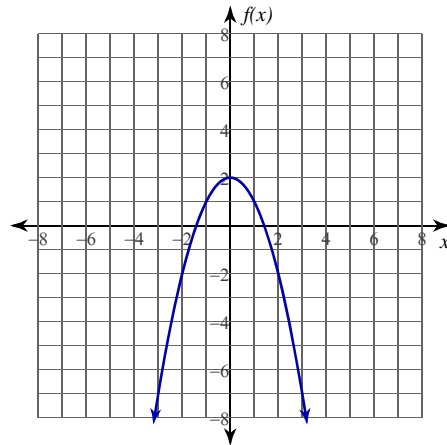
Date _____ Period _____

For each problem, find the instantaneous rate of change of the function at the given value.

1) $f(x) = x^2 + x + 1$; -2

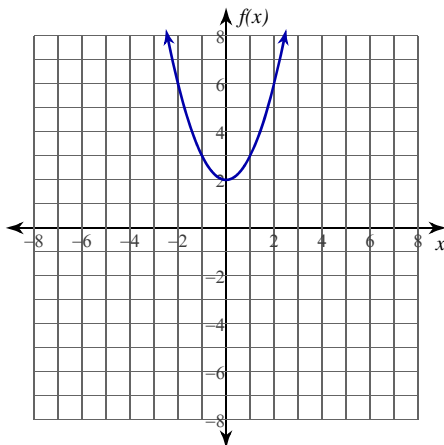


2) $f(x) = -x^2 + 2$; -2

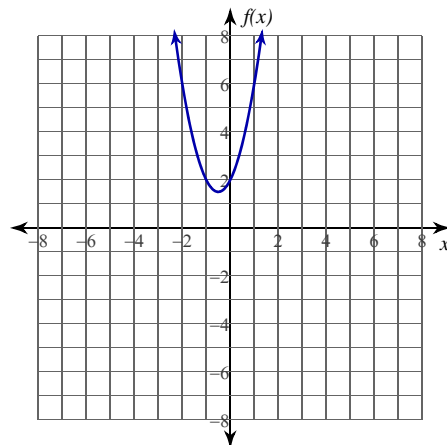


For each problem, find the equation of the tangent line to the function at the given point.

3) $f(x) = x^2 + 2$; $(-2, 6)$



4) $f(x) = 2x^2 + 2x + 2$; $(0, 2)$



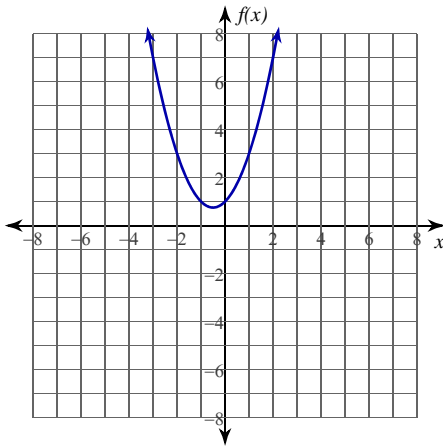
Critical thinking question:

5) Look back to problem 1. At what value of x is the derivative 0?

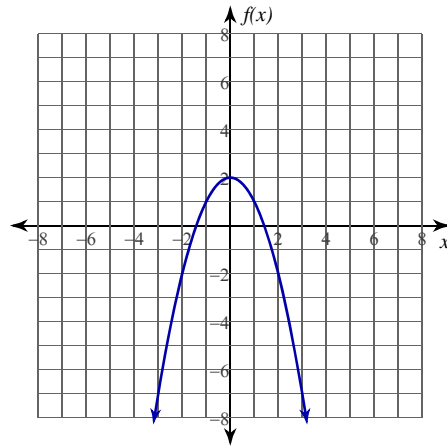
Instantaneous Rates of Change

For each problem, find the instantaneous rate of change of the function at the given value.

1) $f(x) = x^2 + x + 1$; -2

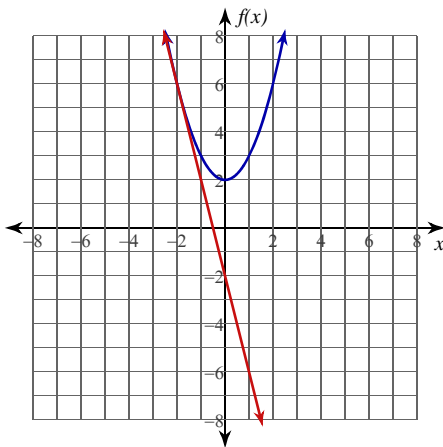
 -3

2) $f(x) = -x^2 + 2$; -2

 4

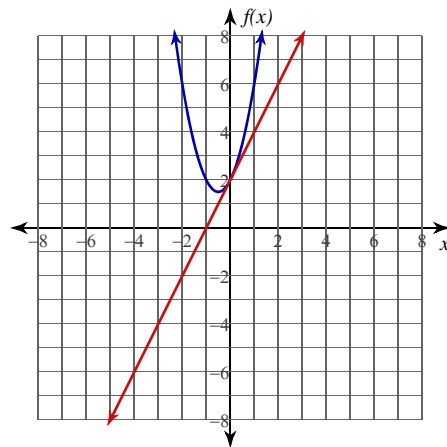
For each problem, find the equation of the tangent line to the function at the given point.

3) $f(x) = x^2 + 2$; $(-2, 6)$



$y = -4x - 2$

4) $f(x) = 2x^2 + 2x + 2$; $(0, 2)$



$y = 2x + 2$

Critical thinking question:

5) Look back to problem 1. At what value of x is the derivative 0?

The derivative is 0 at $x = -\frac{1}{2}$.