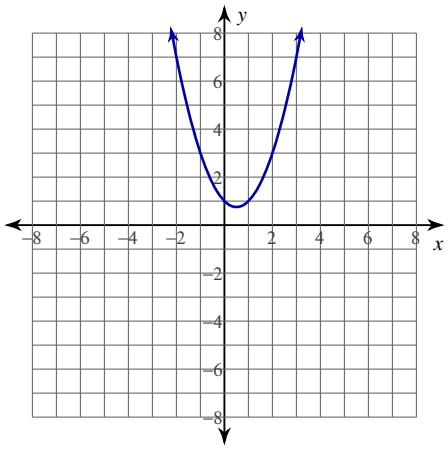
Kuta Software - Infinite Calculus Name_____

Average Rates of Change

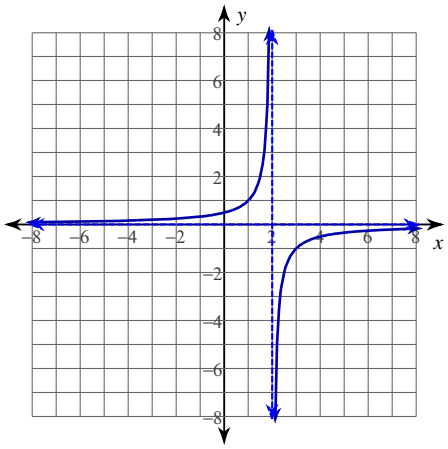
Date_____ Period____

For each problem, find the average rate of change of the function over the given interval.

1) $y = x^2 - x + 1$; $[0, 3]$

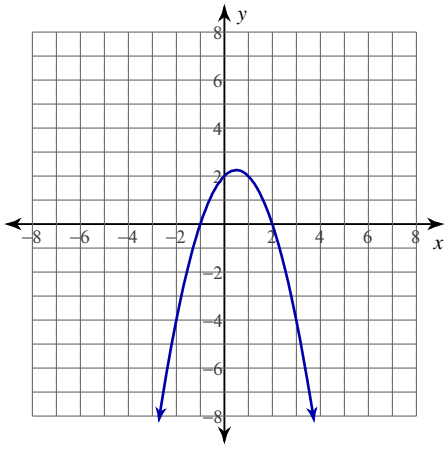


2) $y = -\dfrac{1}{x-2}$; $[-3, -2]$

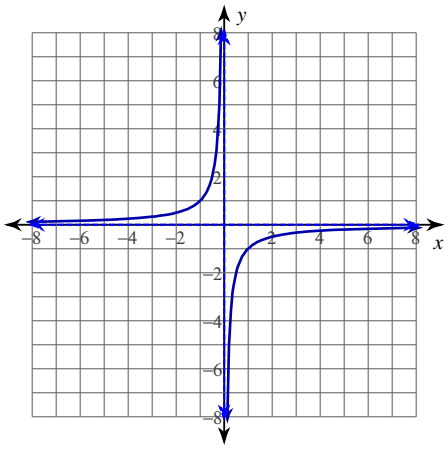


For each problem, find the equation of the secant line that intersects the given points on the function.

3) $y = -x^2 + x + 2$; $(-2, -4), (1, 2)$



4) $y = -\dfrac{1}{x}$; $(1, -1), \left(3, -\dfrac{1}{3}\right)$



For each problem, find the average rate of change of the function over the given interval.

5) $y = x^2 + 2; \quad [-2, -\frac{3}{2}]$

6) $y = 2x^2 - 2x + 1; \quad [-1, -\frac{1}{2}]$

7) $y = -\frac{1}{x+2}; \quad [-1, -\frac{1}{2}]$

8) $y = 2x^2 + x + 2; \quad [0, \frac{1}{2}]$

For each problem, find the equation of the secant line that intersects the given points on the function.

9) $y = -x^2 - 2; \ (1, -3), \left(\frac{3}{2}, -\frac{17}{4}\right)$

10) $y = \frac{1}{x+3}; \ \left(-1, \frac{1}{2}\right), \left(-\frac{1}{2}, \frac{2}{5}\right)$

11) $y = \frac{1}{x-1}; \ \left(-2, -\frac{1}{3}\right), \left(-\frac{3}{2}, -\frac{2}{5}\right)$

12) $y = -\frac{1}{x}; \ (1, -1), \left(\frac{3}{2}, -\frac{2}{3}\right)$

Critical thinking question:

13) The police have accused a driver of breaking the speed limit of 60 miles per hour. As proof, they provide two photographs. One photo shows the driver's car passing a toll booth at exactly 6 PM. The second photo shows the driver's car passing another toll both 31 miles down the highway at exactly 6:30 PM. Does the photo evidence prove that the driver broke the speed limit during this time?