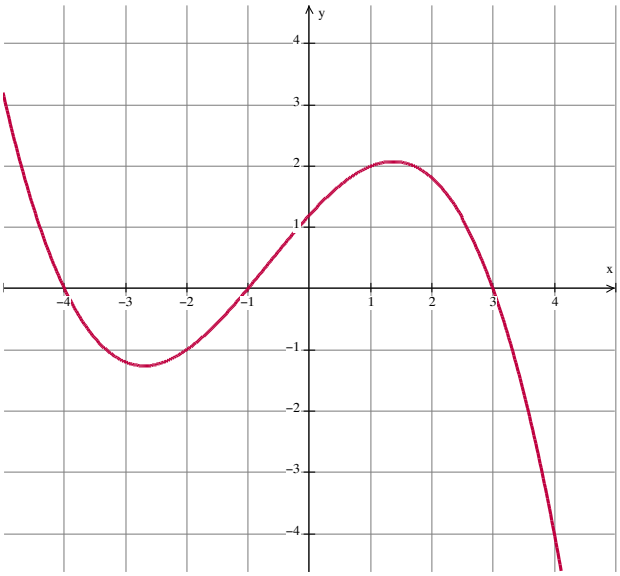
Review for Assessment 2

Section 3.3

1. Identify the intervals on which the graph is positive, negative, increasing and decreasing. Also identify the x-intercepts, local maximum, and local minimum.



2. Compute the average rate of change for the function $f(x) = 5x^2 – 3x + 1$ on the interval [-2, 5].

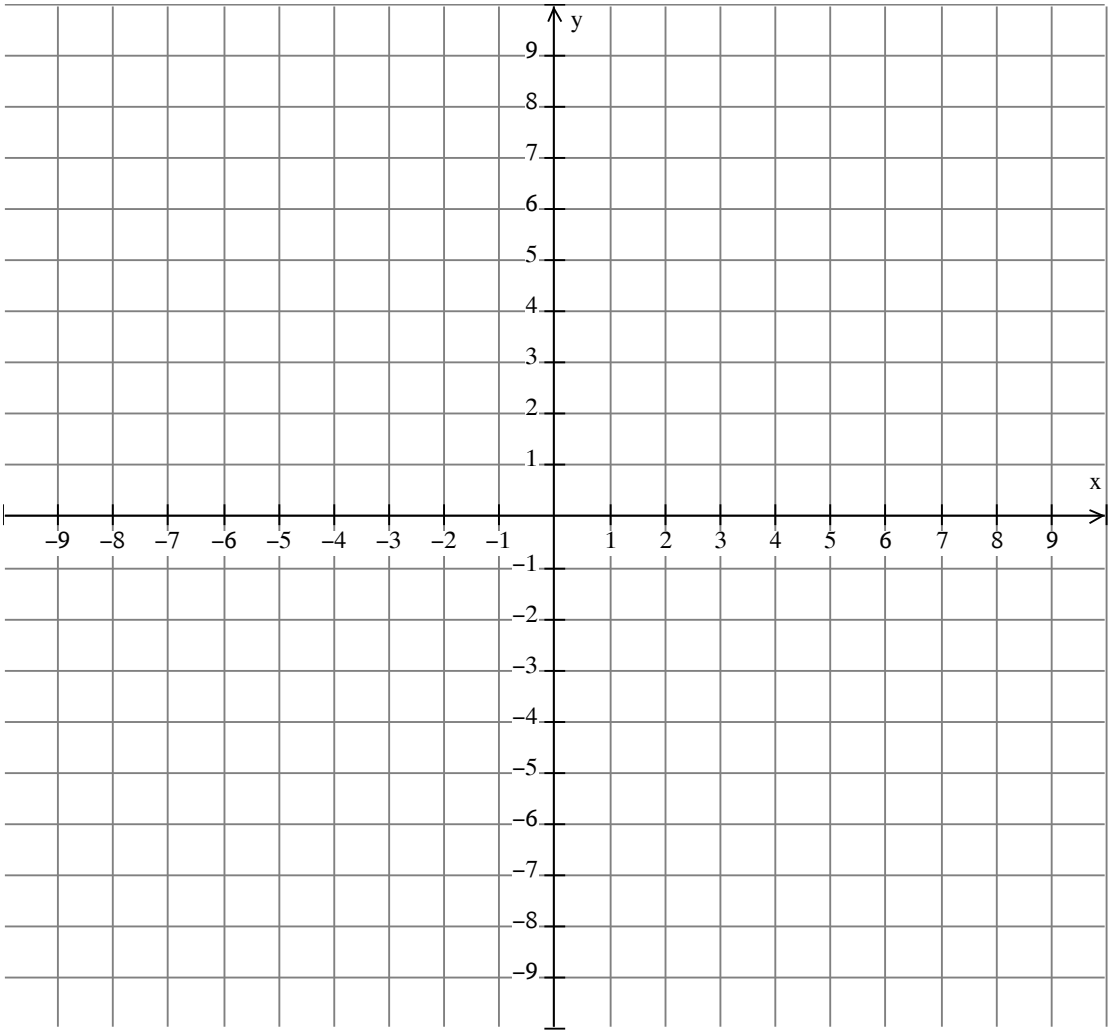
3. The following chart shows the bird population as a function of time.

Number of birds	200	300	350	400	500
year	1	3	4	5	7

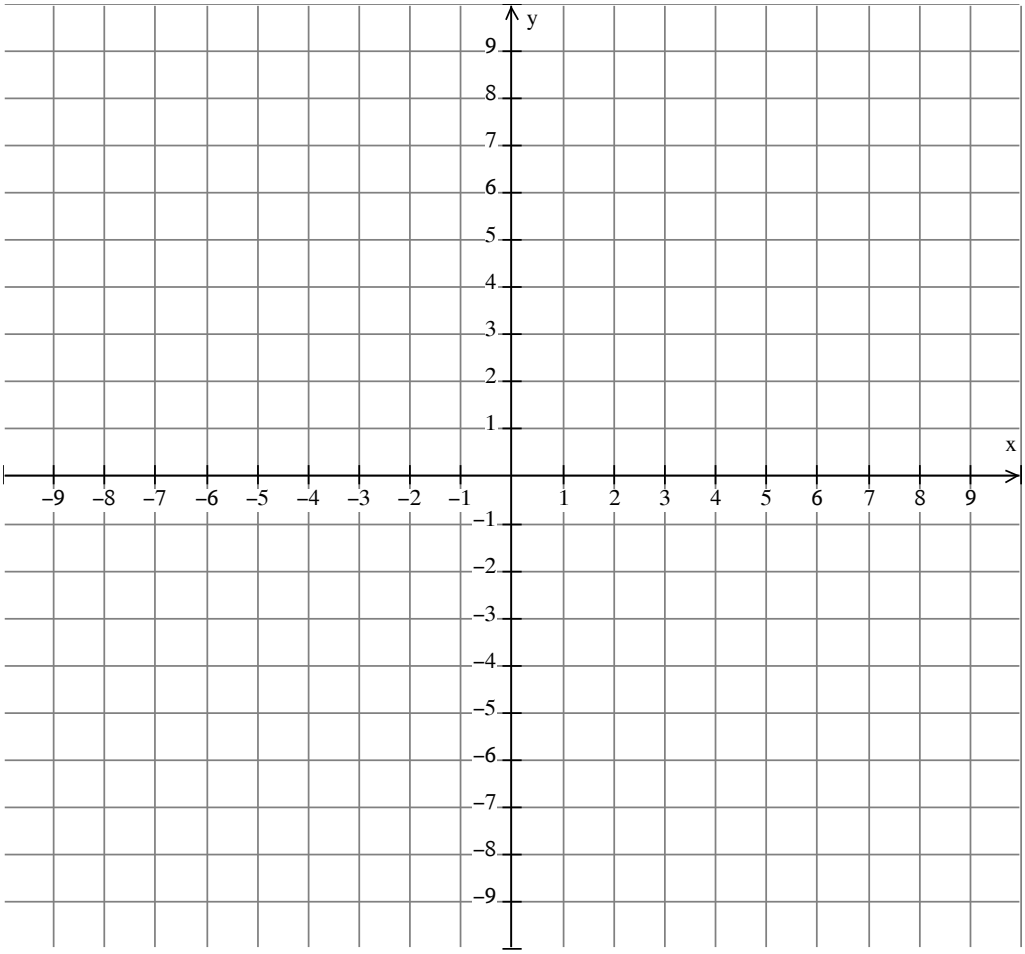
Is the rate of change in the bird population constant? Provide evidence to support your answer.

Section 4.1

4. Find the equation for the line passing through the point (2, -1) and having slope 4/3. Sketch a graph and find the x and y-intercept, both algebraically and on the graph.



5. Find the equation for the line passing through the points (-3, 6) and (7, -5).
   Sketch a graph and find the x and y-intercept, both algebraically and on the graph.



Section 4.2

6. When Maureen babysits, she charges $25 for showing up and an additional $10 per hour for every hour that she's there.
   a. Find the linear function that models what Maureen charges as a function of time.

   b. What is the slope of the model and what does it mean in the context of the problem?

   c. What is the y-intercept of the model and what does it mean in the context of the problem?

   d. How much will Maureen charge for 3 hours of babysitting?

   e. If Maureen charges $100, how long was she babysitting for?

   f. Sketch a graph of your linear model.

7. When T-Shirts R Us prints a new line of T-shirts, they need some time to set up their presses and then they print the lot at a constaint rate. For the current run, they are printing at a rate of 100 shirts per hour. After 3 hours they have printed 250 shirts.
   a. Write a function for the number of shirts printed as a function of time.

   b. What is the slope of this model and what does it mean in the context of this problem?

   c. What is the y-intercept of this model and what does it mean in the context of this problem?

   d. How many shirts will be printed after 5 hours?

   e. How long will it take to print 1000 T-shirts?

   f. Sketch a graph of your linear model.

8. A full size Snickers® bar weighs 52.7 g and has 250 calories. A fun size Snickers® bar weighs 17 g and has 80 calories.
   a. Find a function for the amount of calories in terms of weight of the Snickers® bar.

   b. What is the slope of this function and what does it mean in the context of this problem?

   c. What is the y-intercept of this function and what does it mean in the context of this problem?

   d. The miniature Snickers® bar weighs 9 g, how many calories does it have?

   e. If a Snicker® bar had 200 calories, how much would it weigh?

   f. Sketch a graph of your linear model.

Section 2.5

9. Solve the following equations.
   a. $3x^2 + 2x = 10x - 4$

   b. $0 = 2 - 4x - 6x^2$

   c. $4x + \frac{x}{2x+1} = -1$

   d. $\frac{2x}{3-x} - 1 = x + \frac{5}{3-x}$

Section 5.1

10. Let $f(x) = -3x^2 + 4x + 5$

    a. What is the vertex of f(x)?

    b. What are the zeroes of f(x)?

    c. What is the y-intercept of f(x)?

    d. Sketch a graph of f(x).

11. Let $f(x) = 2x^2 - 5x + 1$

    e. What is the vertex of f(x)?

    f. What are the zeroes of f(x)?

    g. What is the y-intercept of f(x)?

    h. Sketch a graph of f(x).