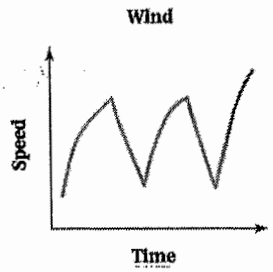
Name: KEY '15 Period: _____

6.5 Analyzing and Sketching Graphs

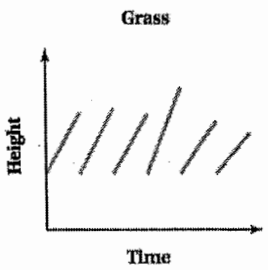
In each problem, describe the progress represented in the graphs between the two quantities.

1)



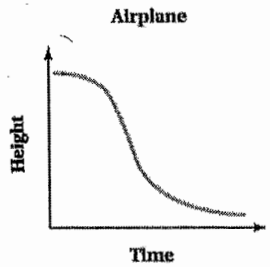
Wind speed increases rapidly, the increases at a slower rate. Then the wind decreases rapidly. Then wind increases at a decreasing rate, then speed rapidly decreases. Finally, wind speed increases rapidly.

2)



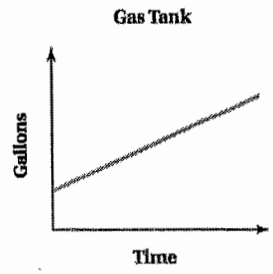
Height of grass grows at a constant rate, then gets cut. Height increases at constant rate, then cut. Increases at a constant rate, then cut. Increases rapidly, then cut. Increases at constant rate, then cut. Increases at constant rate.

3)



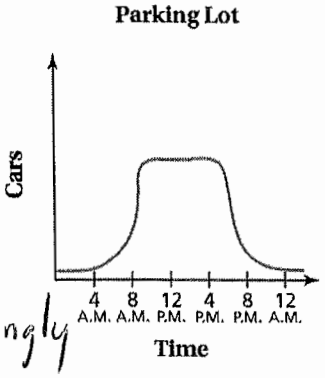
Height of the airplane increasingly decreases and then slowly decreases

4)



Gallons of gas increases at a constant rate over time.

5) The graph shows the number of cars in the parking lot over a 24 hour period.



a) Describe the change in the number of cars from 7:00 A.M. to 9:00 A.M.

The number of cars in the parking lot increasingly increases between 7am and 9am.

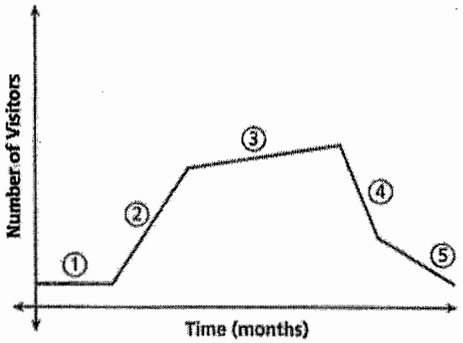
b) Describe the change in the number of cars from 5:00 P.M. to 7:00 P.M.

The number of cars in the parking lot increasingly decreases between 5pm and 7pm

6) A roller coaster park is open from May to October each year. The graph shows the number of park visitors over its season.

a) Segment 1 shows that attendance during the opening days of the park's season stayed constant. Describe what Segment 2 shows.

Attendance increases at a constant rate



b) Based on the time frame, give a possible explanation for the change in attendance represented by Segment 2.

It's the beginning of spring and weather is nicer so more people go to the park.

c) Which segments of the graph show decreasing attendance? Give a possible explanation..

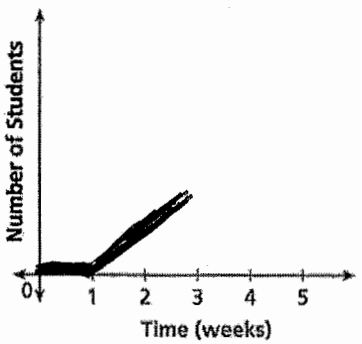
Segment 4 & 5 because it's the beginning of winter so less people go to the park.

d) Explain how the slant of each segment of the graph is related to whether attendance increases or decreases.

Slants that go up from left to right shows an increase
Slants that go dow from left to right show a decrease

7) Mrs. Sutton provides free math tutoring to her students every day after school. No one comes to tutoring sessions during the first week of school. Over the next two weeks, use of the tutoring service gradually increases.

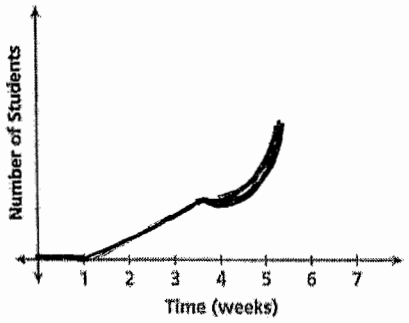
a) Sketch a graph showing the number of students who use the tutoring service over the first three weeks of school.



b) Mrs. Sutton's students are told that they will have a math test at the end of the fifth week of school. How do you think this will affect the number of students who come to tutoring?

The number of students who go to tutoring will dramatically increase in weeks 4 and 5.

c) Considering your answer to part "b" above, sketch a graph showing the number of students who might use the tutoring service over the first six weeks of school.



d) Suppose Mrs. Sutton offered bonus credit to students who came to tutoring sessions. How do you think this would affect the number of students who come to tutoring?

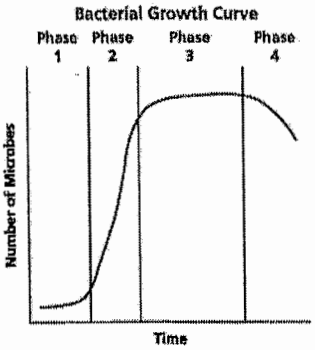
It would slightly increase the number of students who go to tutoring

e) How would your answer to part "d" affect the graph?

It probably would be a slow increase (or constant rate of ~~change~~ increase) after she announced it to class.

8) In a lab environment, colonies of bacteria follow a predictable pattern of growth. The graph shows this growth over time.

a) During which phase is growth slowest? During which phase is growth fastest? Explain.



Slowest → Phase 3 because it's almost a flat line for a long period of time. Phase 3 is fastest because it's line is steepest going up.

b) What is happening to the population during Phase 3?

Growth is considerably slowed down, but is still slightly increasing.

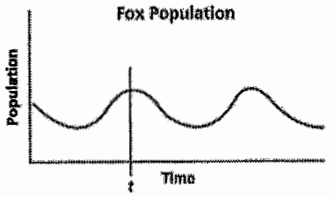
c) What is happening to the population during Phase 4?

The growth is increasingly decreasing over time

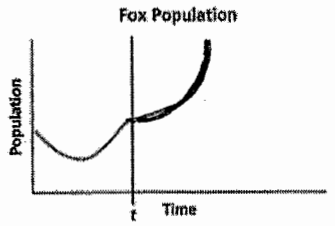
9) A woodland area on an island contains a population of foxes. The graph describes the changes in the fox population over time.

a) What is happening to the fox population before time *t*?

Population is decreasing at first, then it is increasingly increasing



b) At time *t*, a conservation organization moves a large group of foxes to the island. Sketch a graph to show how this action might affect the population on the island after time *t*.

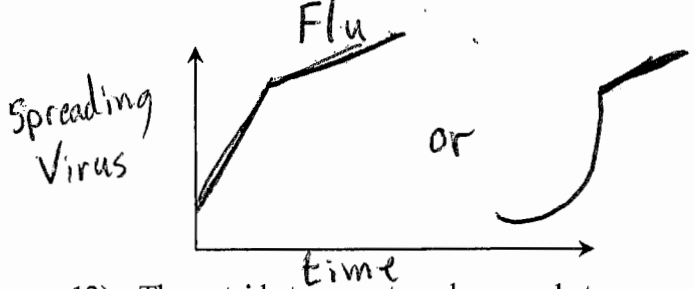


c) At some point after time *t*, a forest fire destroys part of the woodland area on the island. Describe how your graph from problem 5 might change.

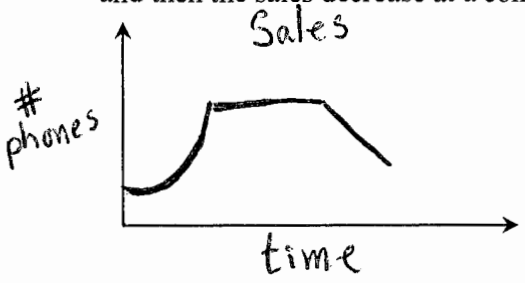
Population would dramatically decrease if there was a fire due to lack of good land and food supply.

Sketch a graph that represents the given situation.

10) The flu virus spreads quickly at first and then more slowly.



11) The sales of a new cell phone increase at an increasing rate, then the sales remain the same, and then the sales decrease at a constant rate.



12) The outside temperature decreased at a decreasing rate and then decreased at a constant rate.