



What is the Business Cycle?

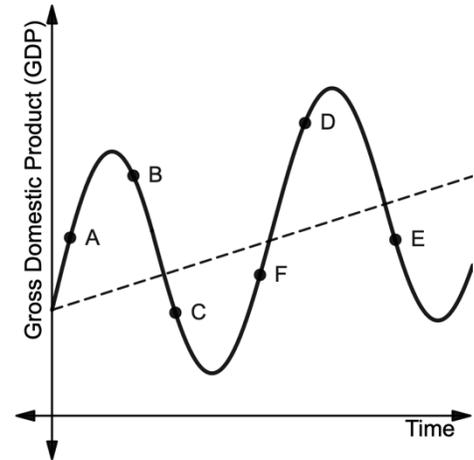
Over time, all economies go through regular cycles of expansion and contraction. This is called the business cycle. Today we'll look at a graph depicting how Gross Domestic Product (GDP) changes with respect to time.

1. What do you notice about this graph? What do you wonder?

2. At each of the points A, B, and C, determine if GDP is increasing or decreasing.

3. The maximum and minimum values of a business cycle are called peaks and troughs.

- Label them on the graph.
- What can you say about the rate of change of GDP at these peaks and troughs?



4. Is GDP increasing and decreasing at a constant rate? Explain.

5. At Point D, GDP is increasing. Is the growth in GDP speeding up or slowing down? How do you know?

6. When is GDP changing the fastest? How can you tell this from the graph?

7. a. At Point E, is the slope of the curve negative or positive? What does this mean in the context of this problem?

b. At Point E, are the slopes increasing or decreasing? What does this tell you about how GDP is changing at this part of the business cycle?

8. Describe what is happening at Point F with as much detail as possible.

Lesson 1.3 – Concavity

QuickNotes

Check Your Understanding

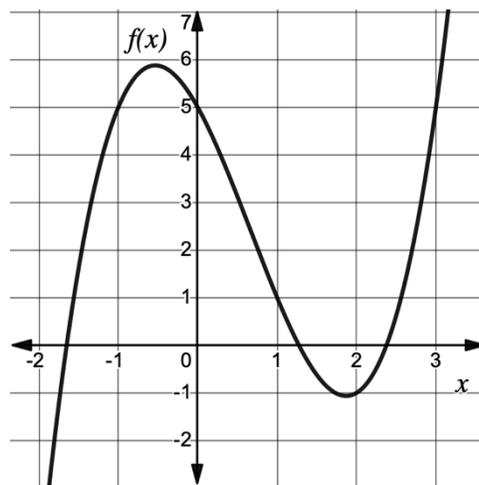
The graph of a function f is shown.

1. Is f increasing or decreasing at $x = -1$? How do you know?

2. Is the *rate of change of f* increasing or decreasing at $x = -1$? How do you know?

3. On which interval of the domain is the graph of f concave down?

4. On which interval of the domain is the graph of f concave up?



5. Estimate the x -value of the point of inflection. Describe what this point tells you about how f is changing.

6. Values for the rate of change of f at the 5 values given in the table are -4.25 , -3 , 1 , 4 , and 9.75 . Fill in the table below to match each rate of change with the x -value where it occurs.

x	-1.5	-1	0	0.5	2
Rate of change of $f(x)$					