Chapter 6 Section 1 MA1032 Data, Functions & Graphs

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October 30, 2006

Thursday Follow Up



A ferris wheel of diameter 50 meters completes one revolution every 2 minutes. When you are at the lowest point on the wheel, you are still 5 meters off the ground.

- Sketch a circle and label the points on the circle that correspond to each 15 seconds that pass.
- 2 Make a table with the estimated height h(t) for t = 0, 15, 30, ..., 120 seconds.
- 3 Sketch a graph of the height above the ground as a function of time for one complete revolution (starting from the lowest point).

Definition

A function f is periodic if its values repeat at regular intervals. Graphically, this means that if the graph of f is shifted horizontally by c units, the new graph is identical to the original. In function notation, periodic means that, for all t in the domain of f,

$$f(t+c)=f(t).$$

The smallest positive constant c for which this relationship holds for all values of t is the period of f.

Definition

The midline of a periodic function is the horizontal line midway between the function's maximum and minimum values.

Definition

The amplitude is the vertical distance between the functions maximum (or minimum) value and the midline.

Graphing a Periodic Function

- Amplitude
- Midline
- Period