Lesson 22

Read Chapter 19

Sinusoidal functions

Graph $f(x) = A\sin(\frac{2\pi}{B}(x - C)) + D$

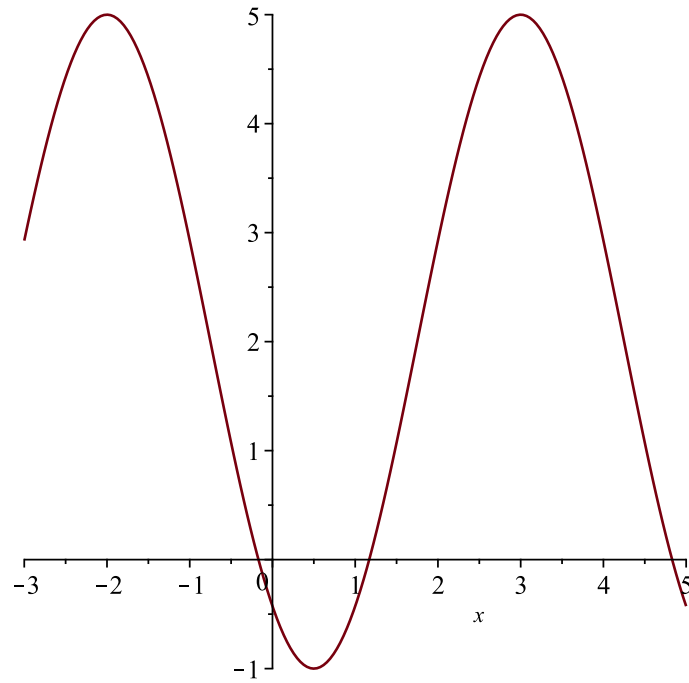# Sinusoidal functions

$$f(x) = A\sin(\frac{2\pi}{B}(x - C)) + D$$

A: amplitude. Half total height (for $A > 0$) $\frac{y_{max} - y_{min}}{2}$

B: period. Distance between two peaks.

C: phase shift. x-coordinate of max - $\frac{B}{4}$

D:mean. Half way vertical point. $\frac{y_{max} + y_{min}}{2}$

Find a formula for the sinusoidal function below

Assume the depth of the shore at Neah Bay is given by
$d(t) = 12\sin(\frac{\pi}{6}(t-3)) + 15$. t is measured in hours , d in feet.
What is the maximum depth of the beach and when is it reached ?
When is the minimum depth and when is it reched ?

Find all times t with $0 \leq t \leq 23$ when the beach is 23 feet wide