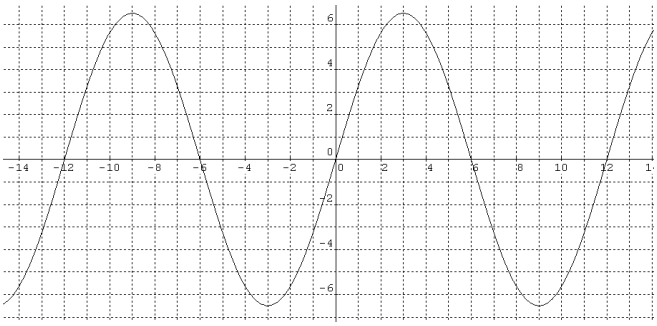
Applications of Trig Graphs

Example 1: The tides in the Bay of Fundy cause the water to rise 6.5 meters above sea level and 6.5 meters below sea level, depending on the time of day. The tides make a complete cycle every 12 hours. Assuming the height of the water can be modelling by a sine function,

(a) Draw a graph of the relationship between time and the height of the water.



(b) Determine an equation for this relationship. $\left(y = 6.5\sin 30x\right)$

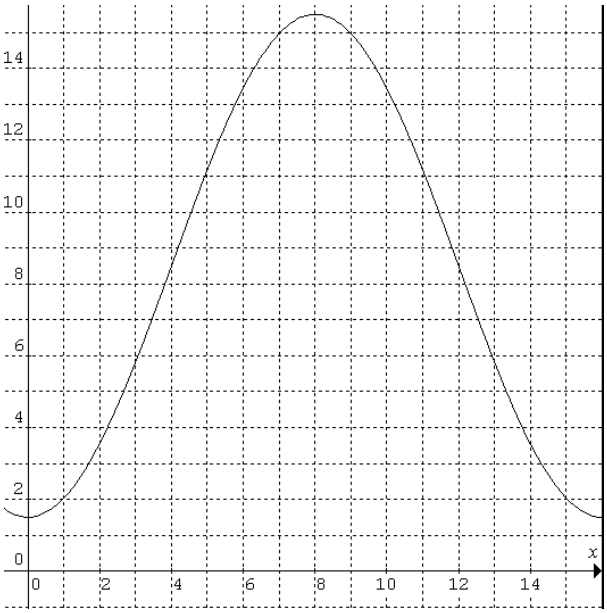
(c) At what time will the tides first be 3.25 below sea level?

$$-3.25 = 6.5\sin 30x$$
$$-0.5 = \sin 30x$$
$$210 = 30x$$
$$x = 7$$

At 7s.

Example 2: A ferris wheel with a radius of 7m makes one complete revolution every 16s. The bottom of the wheel is 1.5m above the ground.

(a) Draw a graph to show how a person's height above the ground varies with time.



(b) Find an equation of the graph. $\left(y = 7\sin\left[\frac{45}{2}(x-4)\right] + 8.5 \right)$

Homework: pg. 36 # 18, 19; pg. 41#4 - 9