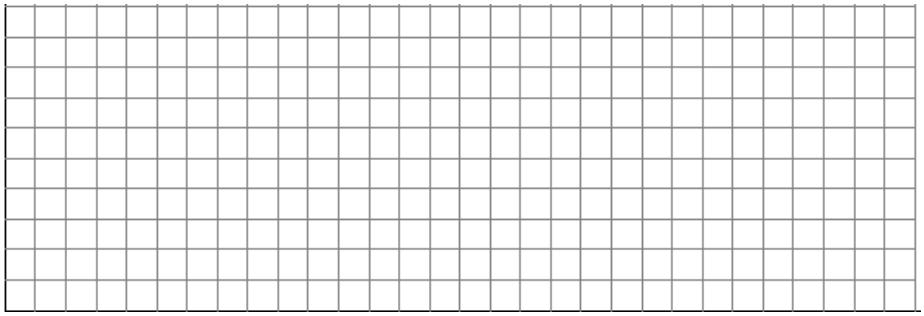
36) The function $y = 30\sin 2\pi t + 120$ if a very rough model of a person's blood pressure (in millimeters of mercury) measured in t seconds. Blood pressure is measured as systolic(maximum)/diastolic(minimum).

What is this person's blood pressure?

What is the period of this function?

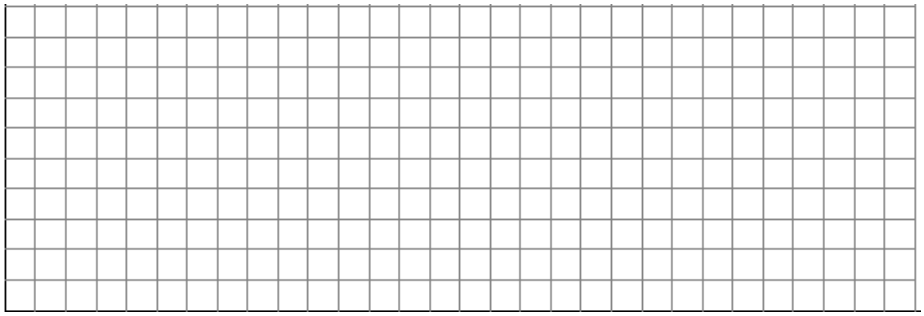
Sketch a graph of this function to model a 5-second time interval.



What is the sinusoidal equation that represents someone with blood pressure 120/80? (Assume the period doesn't change.)

37) The number of hours of daylight measured in one year in Pleasantville can be modeled by a trig function. During 2006, (not a leap year), the longest day occurred on June 21 with 15.7 hours of daylight. The shortest day of the year occurred on December 21 with 8.3 hours of daylight.

Sketch a graph of daylight hours throughout the year. (For simplicity let's assume each month has the same number of days. You can use the 21^{st} of each month as your x-axis scale.)

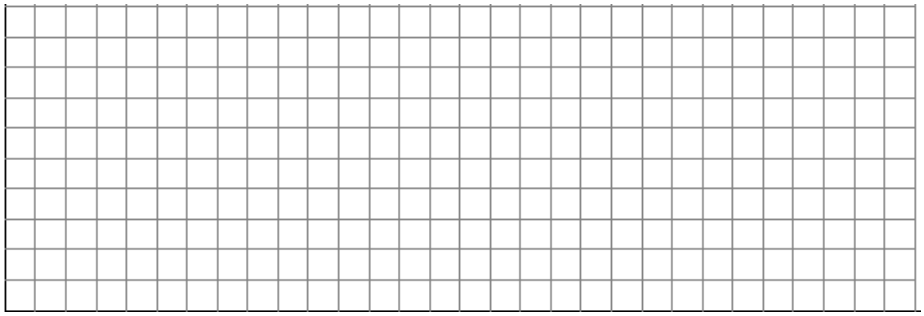


Write a sine or cosine equation to model the hours of daylight in Pleasantville.

How many hours of daylight would you expect there to be on August 21, 2006?

38) A weight on the end of a spring is at rest 120 cm above the ground. it is pulled down 50 cm and released at time t=0. It takes 6 seconds for the weight to return to the low position.

Sketch a graph modeling the height as a function of time using either a sine or cosine graph.



Determine the equation of your model function.

Find the height of the weight after 4 seconds.

Find the first four times the mass reached 95 cm.