

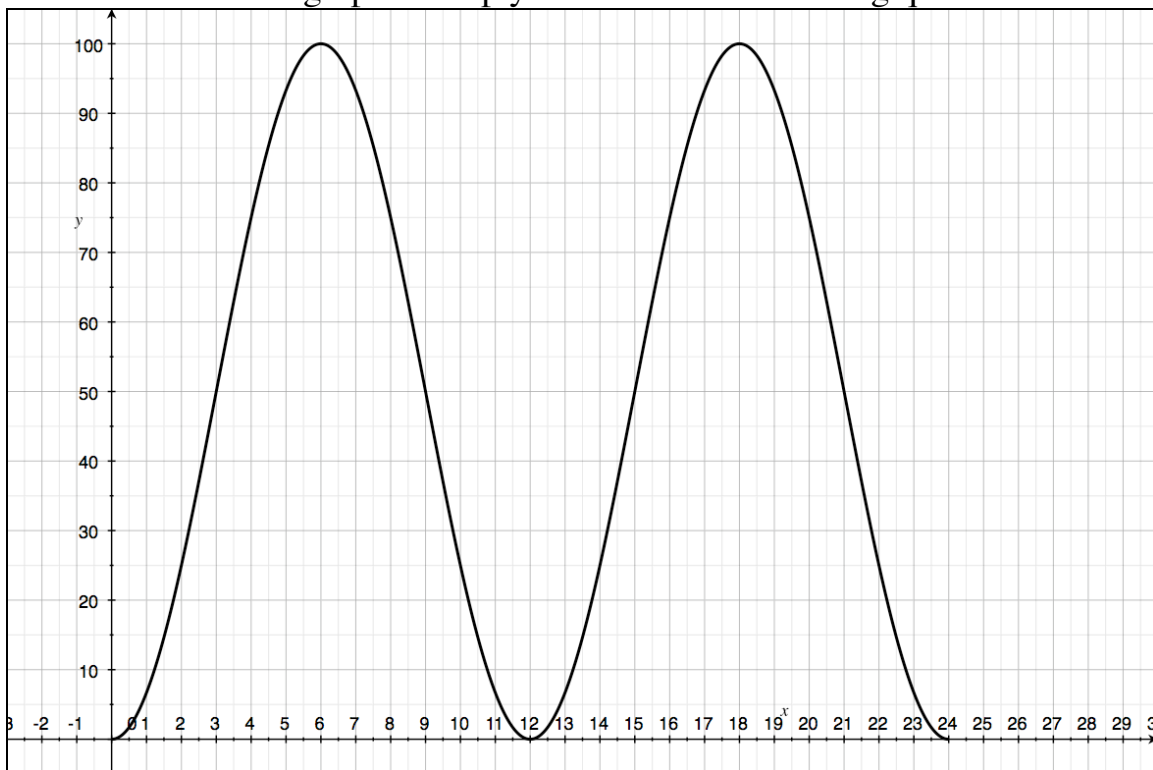
# Precalc – Periodic Equations Representing Real World Functions – 12/9/10

Name: \_\_\_\_\_

Period: \_\_\_\_\_

Students will be able to use period and amplitude in order to analyze real world situations model by periodic functions.

The following graph represents your height as you ride on a Ferris wheel. The y-axis is your height measures in meters and the x-axis is time measured in minutes. Use the graph to help you answer the following questions.



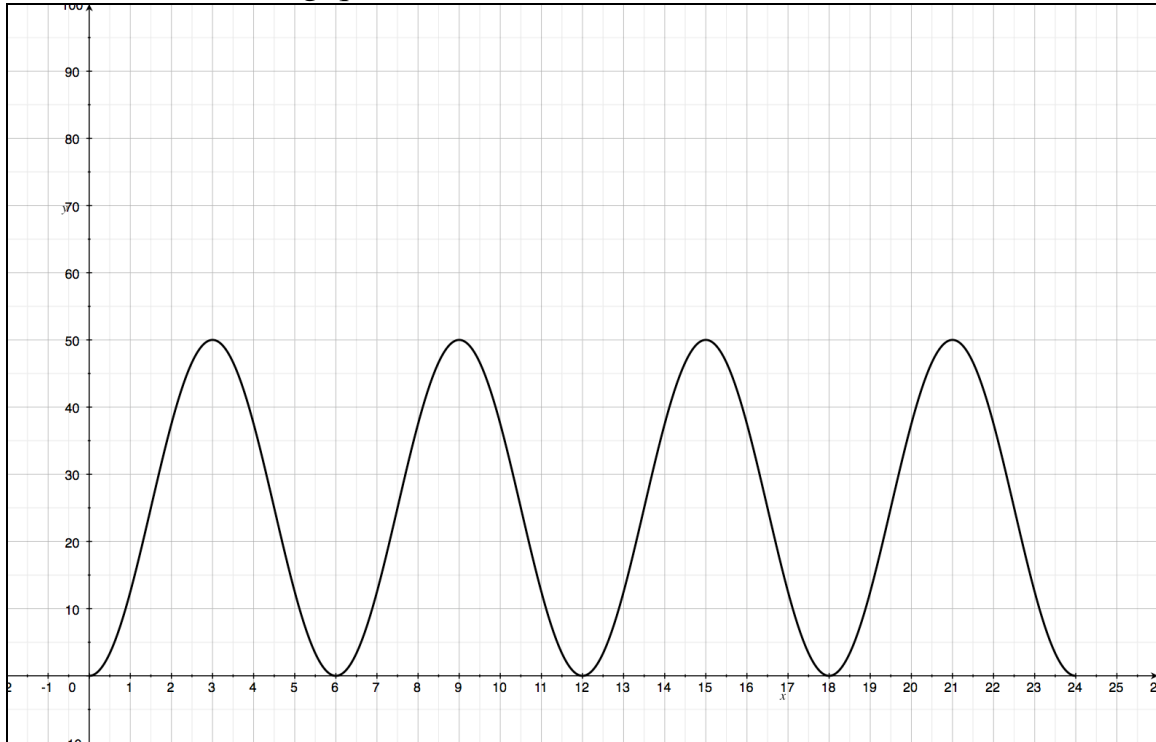
What is your greatest height?

What is the radius of the Ferris wheel?

How long does it take the Ferris wheel to make one revolution?

How many times do you go around the Ferris wheel before you get off?

The amusement park you go to has another Ferris wheel and you want to compare the two rides. The following graph represents your height as you ride on the second Ferris wheel. The y-axis is your height measures in meters and the x-axis is time measured in minutes. Use the graph to help you answer the following questions.



What is your greatest height?

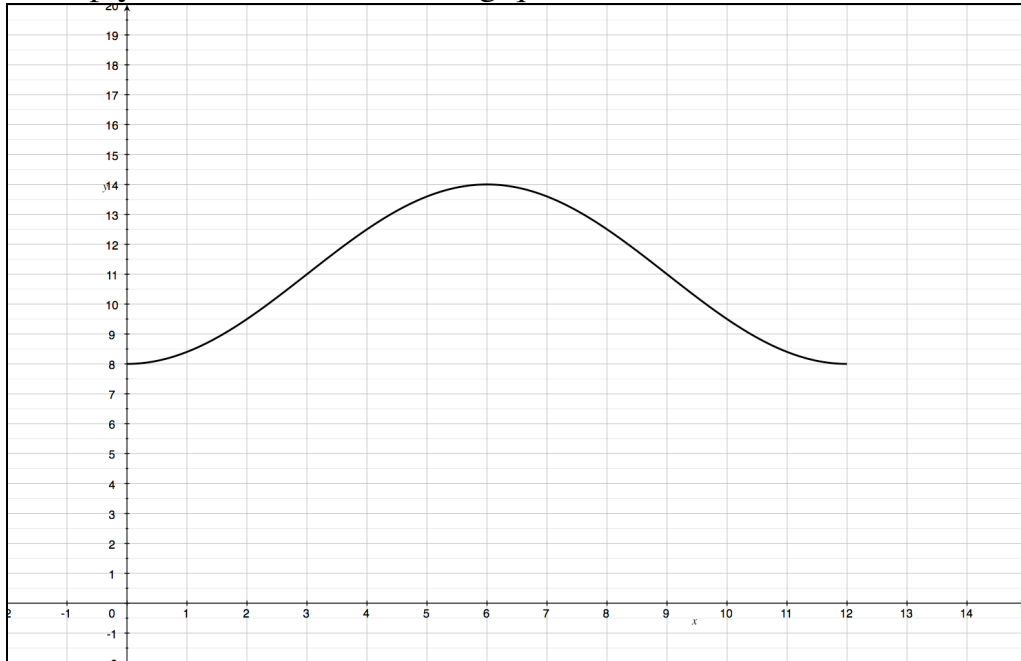
What is the radius of the Ferris wheel?

How long does it take the Ferris wheel to make one revolution?

How many times do you go around the Ferris wheel before you get off?

Which Ferris wheel would you rather ride on? Why?

The graph below represents the average number of daylight hours for each month in Washington, D.C. The number of daylight hours is on the y-axis and measured in hours. The month of the year is on the x-axis. Use the graph to help you answer the following questions.



Which month has the most hours of sunlight? How many hours of sunlight does it have?

Which month has the fewest hours of sunlight? How many hours of sunlight does it have?

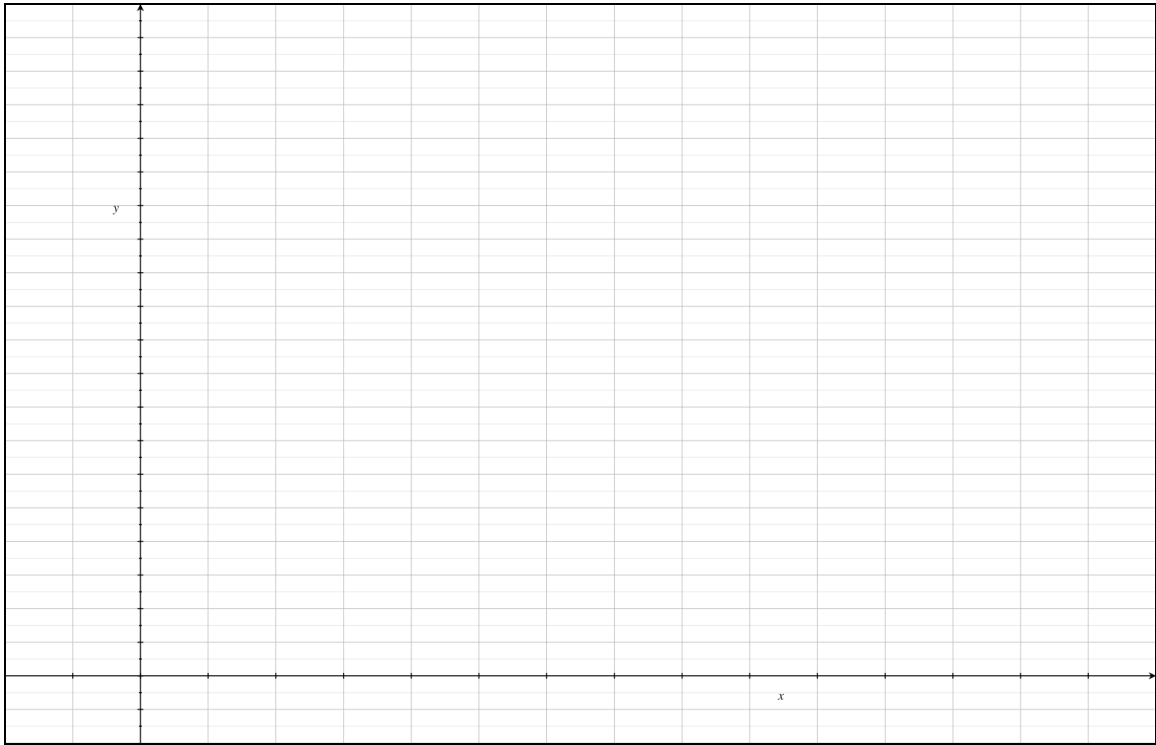
Is the number of hours of sunlight strictly increasing, strictly decreasing or neither?

Over which months is the number of hours of sunlight increasing?

Over which months is the number of hours of sunlight decreasing?

What is the amplitude of this function? What meaning does the amplitude have?

Consider the following scenario: You go to the park and swing on the swing. Your height off the ground is a periodic function. Your maximum height is 10 ft. and your minimum height is 2 ft. It takes you 4 seconds to do one full cycle on the swing. Sketch a graph that could represent your height compared to time. Use the graph to help you answer the following questions.

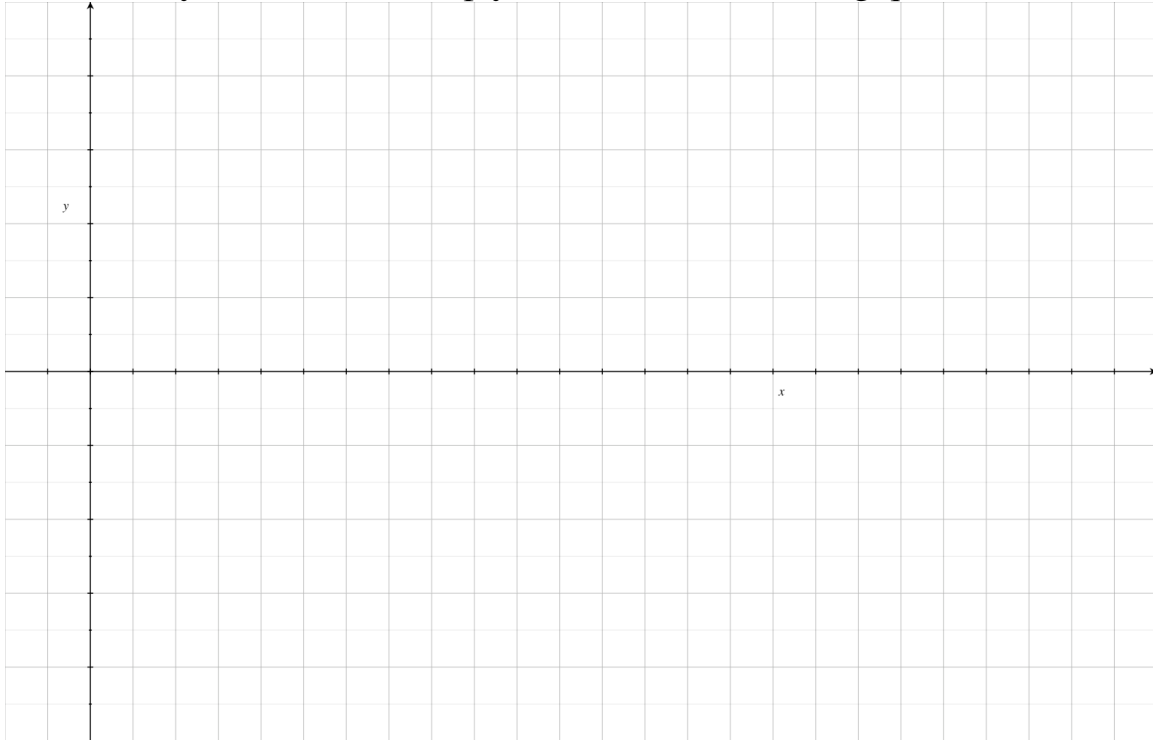


What is the amplitude of your function? What does it represent?

What is the period of your function? What does it represent?

How many times would you go back and forth in 12 seconds?

Consider the following scenario: The height of the water in the Chesapeake Bay changes throughout the day according to a periodic function. At hour zero the height of the water is 4 feet below its average height. After six hours, the height of the water is 4 feet above its average height. Sketch a graph that could represent the height of the water in the Chesapeake Bay over one day. And use it to help you answer the following questions.



What is the amplitude of your function? What does it represent?

What is the period of your function? What does it represent?

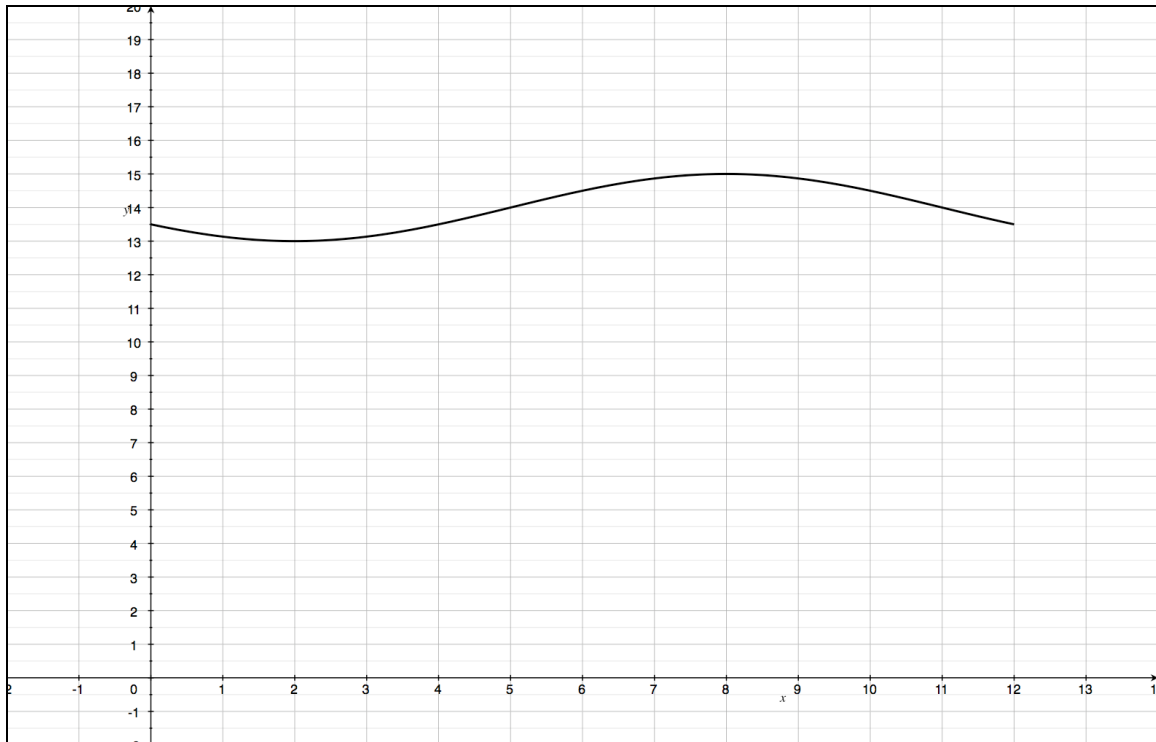
How many times would the height of the water be at its average height over the course of 24 hours?

# Precalc – Exit Slip – 12/9/10

Name: \_\_\_\_\_

Period: \_\_\_\_\_

The following graph represents the distance of the earth from the sun over the course of the year with distance in millions of kilometers on the y-axis and the month of the year on the x-axis. Answer the following questions.



How many millions of kilometers is the earth from the sun in May?

During which month is the sun closest to the sun?

What is the amplitude of this function? What does it represent?