

Biorhythms

Name: _____ period: _____

Biorhythm (Greek – biorhuthmos) theory states that a person's biological functioning is controlled by three phenomena that vary SINUSOIDALLY with time. "Bio" means "life" and "rhythm" pertains to "flow with regular movement". Biorhythm charts illustrate the principle that we are influenced by physical, emotional, and intellectual cycles. In other words, depending on your birthday, there are certain days that you will have a physiological "high". Many people report that they can improve the quality of their lives by monitoring the highs and lows of these cycles and acting accordingly. For example, you might try to schedule important exams during your intellectual highs, avoid talking to your significant other during your emotional lows, or arrange the lineup of your baseball team around the physical highs of your teammates.

The three graphs are given by $y = A \sin(kx)$ where $x = 0$ corresponds to a person's day of birth, and where $A = 1$ is used to denote 100% potential. Biorhythm cycles have varying periods. Last class period, you discovered through graphing that the function $y = A \sin(kx)$ has a period of $\frac{2\pi}{k}$. We will use this fact to help us graph biorhythmic cycles.

- 1) The physical cycle has a period of 23 days. Use this to find the value of k , and then write an equation for a physical biorhythm. _____ Enter this equation into Y_1 in your calculator.
- 2) The emotional cycle has a period of 28 days. Use this to find the value of k , and then write an equation for an emotional biorhythm. _____ Enter this equation into Y_2 in your calculator.
- 3) The intellectual cycle has a period of 33 days. Use this to find the value of k , and then write an equation for an intellectual biorhythm. _____ Enter this equation into Y_3 in your calculator.

In September of 1992, George Brett, the third baseman for the Kansas City Royals was trying to get his 3000th major league hit. George was born on May 15th, 1953. By graphing his three biorhythms for the month of September, we can predict if September was his month to achieve this feat.

First, we need to define an appropriate range (x -min and x -max). Make sure you are in radian mode!

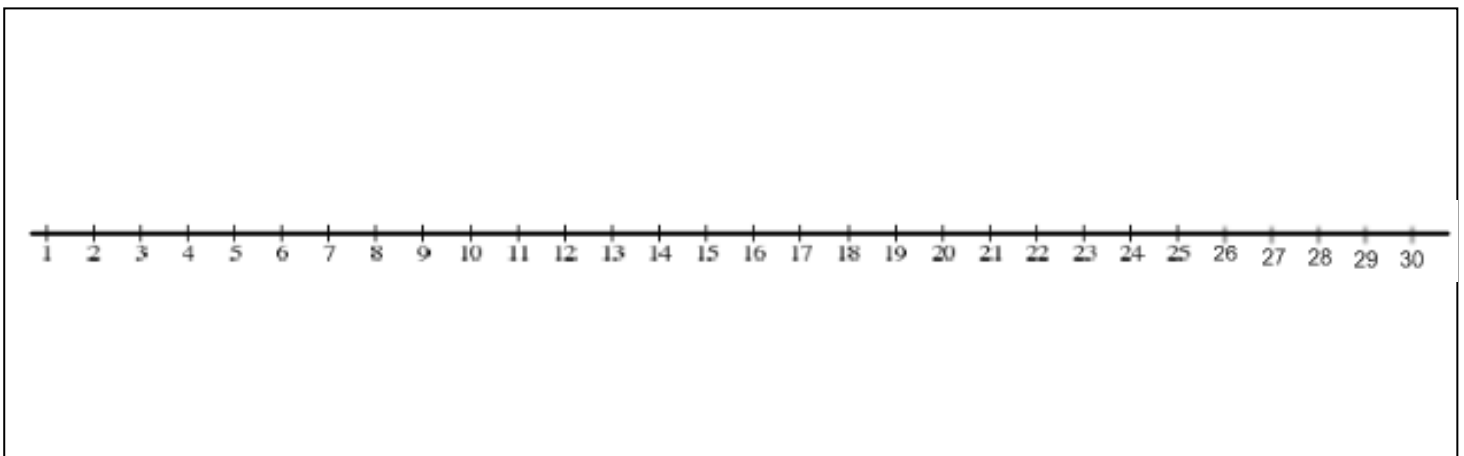
Step One: The minimum x -value is equal to the number of days that George has lived from his birth to the first day of September, 1992. To do this, we need to take into account LEAP years. 1956, '60, '64, ...'92 were leap years. The following formula will help us find our minimum x -value. X -min = **39 (365) + 10 + 108**
What do each of these numbers represent?

39 = _____ 365 = _____ 10 = _____ 108 = _____

What is our minimum x -value? _____

Step Two: You can obtain the maximum x -value, add the number of days of the month you're looking at to the minimum x -value. What is our maximum x -value? _____

Graph the three cycles and record the graphs below. Use colored pencils, and make a key.

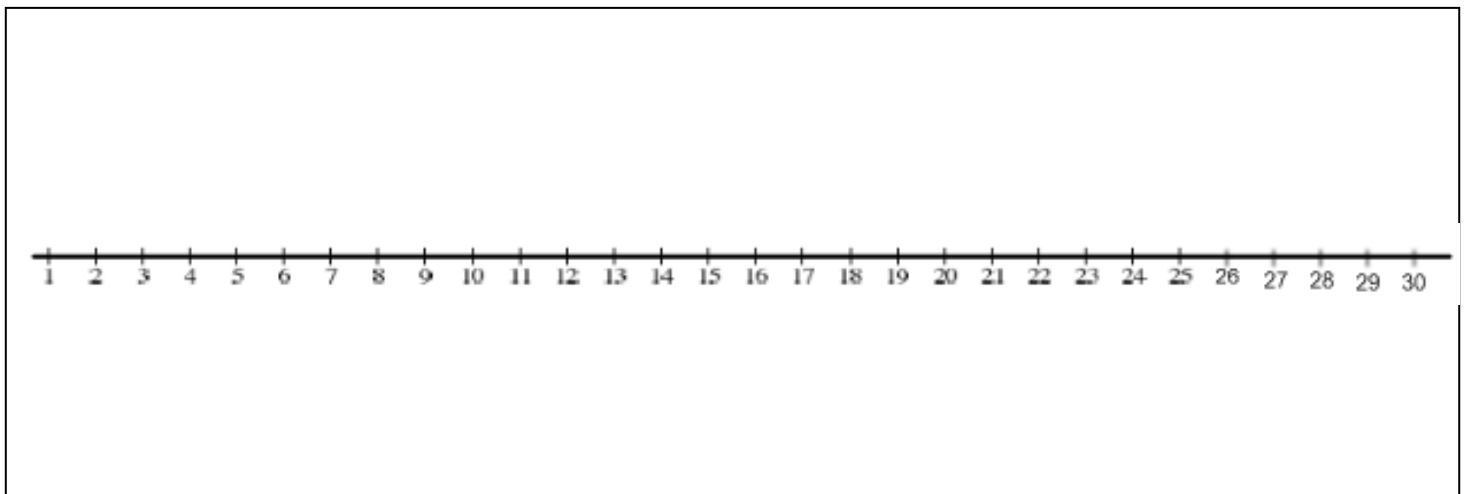


- 4) What day(s) of the month was George at his “emotional high”? _____
- 5) What day(s) of the month was George at his “intellectual high”? _____
- 6) What day(s) of the month was George at his “physical high”? _____
- 7) On September 29th, 1992, George Brett, after missing two games because of a shoulder injury, got four consecutive hits against the Angels in Anaheim and reached the historic 3000 mark. What was George’s physical level on that day (as a percentage)? _____

Now graph **your** biorhythms for the upcoming month. The functions will not change, only the range. Use the formula on the previous page to help you.

Your birthday: (month/day/year) _____

Xmin → _____ x _____ + _____ + _____ = _____ Xmax → _____



- 8) What is your best physical day(s) of the month? _____ Emotional? _____
- 9) When should I schedule a test for you to do your best? _____
- 10) With your luck, when will I schedule a test? _____
- 11) What will be your best overall day during the month? _____ Explain:
- 12) When all three cycles are at or near a low, biorhythm theory claims that a person’s overall performance is very poor. When, during the next month, will your overall performance be the lowest?

- 13) According to the same theory, the most dangerous time, your “critical day” for a particular function (illness, bad decisions, clutsky-ness) is when it crosses the time axis. During the next month, what is your critical day for each particular function?
Physical function? _____
Emotional function? _____
Intellectual function? _____
- 14) Pick a date this month that is important to you. _____
- 15) Which biorhythm do you want to be “high” on this date? _____ Is it? _____