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Above is a chart showing the amount of followers Justin Bieber and Charlie Sheen had after the first 337 days each of them used Twitter. The data points were taken at the beginning of each month. Use this data and your graphing calculator to complete the tasks below.

With popularity measured in terms of followers, the teen heart-throb Justin Bieber is one of the “popular kids” in the Twitter world, currently ranking second on Twitter next to Lady Gaga who has over 19 million followers. Another celebrity who is very popular on twitter but for very different reasons, is Charlie Sheen, who is relatively new to Twitter and has over 6 million followers. After joining Twitter in March 2011 during his rapid, public downfall, Charlie Sheen was “winning” this year when he received the 2011 Guinness World Record for “fastest time to reach 1 million followers” with an average of 129,000 new followers per day.

FameCount.com has dedicated their time to collecting data on various celebrities and their place in the social networking community. The website is updated daily, and includes the amount of followers each celebrity has, whose gaining followers at the fastest rate, as well as many other various statistics on Facebook, Twitter, and YouTube. We will use data from this website to complete the assignment.

|  |  |
| --- | --- |
| **Days** | **Followers** |
| **Y1** | **Justin Bieber Y2** | **Charlie Sheen Y3** |
| 1 | 5515364 | 103264 |
| 31 | 5889755 | 3357401 |
| 61 | 6186990 | 3716599 |
| 92 | 6453186 | 4081937 |
| 122 | 6916126 | 4320912 |
| 153 | 7746687 | 4508872 |
| 184 | 8471687 | 4769450 |
| 214 | 9306875 | 4954896 |
| 245 | 10090585 | 5147590 |
| 275 | 10688310 | 5419612 |
| 306 | 11385377 | 6006490 |
| 337 | 12353124 | 6490093 |

The world we live in allows us to stay connected with the people around us through the use of cell phones, and the internet. In March of 2006, Jack Dorsey created an online social networking service “that enables users to send a text-based post up to 140 characters, known as tweets.” According to Compete.com, 400,000 tweets were sent per quarter in 2007. As of March 2011, approximately 140 million tweets were posted EACH day! As the second most popular social networking site with over 462 million registered accounts (next to Facebook with over 1 billion according to Twochart), Twitter has given a voice to the average Joe as well as become a platform for celebrities to connect with their fans.

**Tasks:**

1. Insert the data into your calculator and complete a linear, power, exponential and natural log regression for both celebrities. Record the r-values in the table below.

|  |  |  |
| --- | --- | --- |
|  | **Justin Bieber** | **Charlie Sheen** |
| **Linear** |  |  |
| **Power** |  |  |
| **Exponential** |  |  |
| **Natural Log** |  |  |

2. What regression has the “best” fit for each celebrity? Which regression was the “worst” fit for the data?

3. Graph the data for both celebrities, along with the regressions you chose as the “best fit.” Are there any points in which they intersect? If yes, when will this happen and how many followers do they have? If not, do you think they ever will intersect in the future and why?





4. Extend the window to include the graph of an additional year (365 days) of data. How many followers does Charlie Sheen have after being on Twitter for a year and a half (30 days in a month)? How long does Justin Bieber need to be on Twitter when he reaches 25 million followers?

5. As of February 15, 2012 Justin Bieber had 17,424,459 followers, and Charlie Sheen had 6,636,116 followers. Knowing this information, do you believe the regression you chose is a good predictor of future behavior for both celebrities? Why or why not?

6. What might cause either or both of these celebrities to gain a significant amount of followers in a short amount of time? What might cause them lose followers?

7. If you were to create this project for another class, what two celebrities would you use?