

NAME: \_\_\_\_\_

## UNIT 4 • DESCRIBING DATA

### Lesson 2: Working with Two Categorical and Quantitative Variables

#### Problem-Based Task 4.2.2: Movie Buzz

Word of mouth can be a great way to increase a movie's popularity. A small local movie theater released a movie. On the first day, only 5 people saw the movie. They all loved it, and each told at least 5 more people to go see the movie. The second day of the movie's release, many of the people who had been told to see the movie went to the theater. Each day, each person who viewed the movie told approximately 5 other people to go to the theater. The table below shows the number of people who viewed the movie in its first 4 days out.

Day	Number of viewers
1	5
2	27
3	124
4	626

Create a scatter plot showing the number of viewers each day the movie played at the theater. Which type of function would best approximate the data? Two theater employees each try to determine a function to fit the data. One thinks that the equation  $y = 5^x$  is a good fit for the data; the other thinks the equation  $y = 200x - 200$  is a good fit for the data. Which function is a better fit? If this trend continues, approximately how many people will see the movie on the fifth day of the movie's release?

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## Coaching

- Create a scatter plot of the given data.
- Look at the shape of the scatter plot. Is the data linear or exponential?
- Graph the functions  $y = 5^x$  and  $y = 200x - 200$  on the scatter plot with the data.
- Which function is a better fit for this data?
- Use your equation to estimate the number of people who will see the movie on the fifth day.