Exploring Exponential Models

Activity: Tournament Play

The National Collegiate Athletic Association (NCAA) holds an annual basketball tournament. The top 64 teams in Division I are invited to play each spring. When a team loses, it is out of the tournament.

1. How many teams are left in the tournament after the first round of basketball games?

2. **a.** Copy, complete, and extend the table until only one team is left.

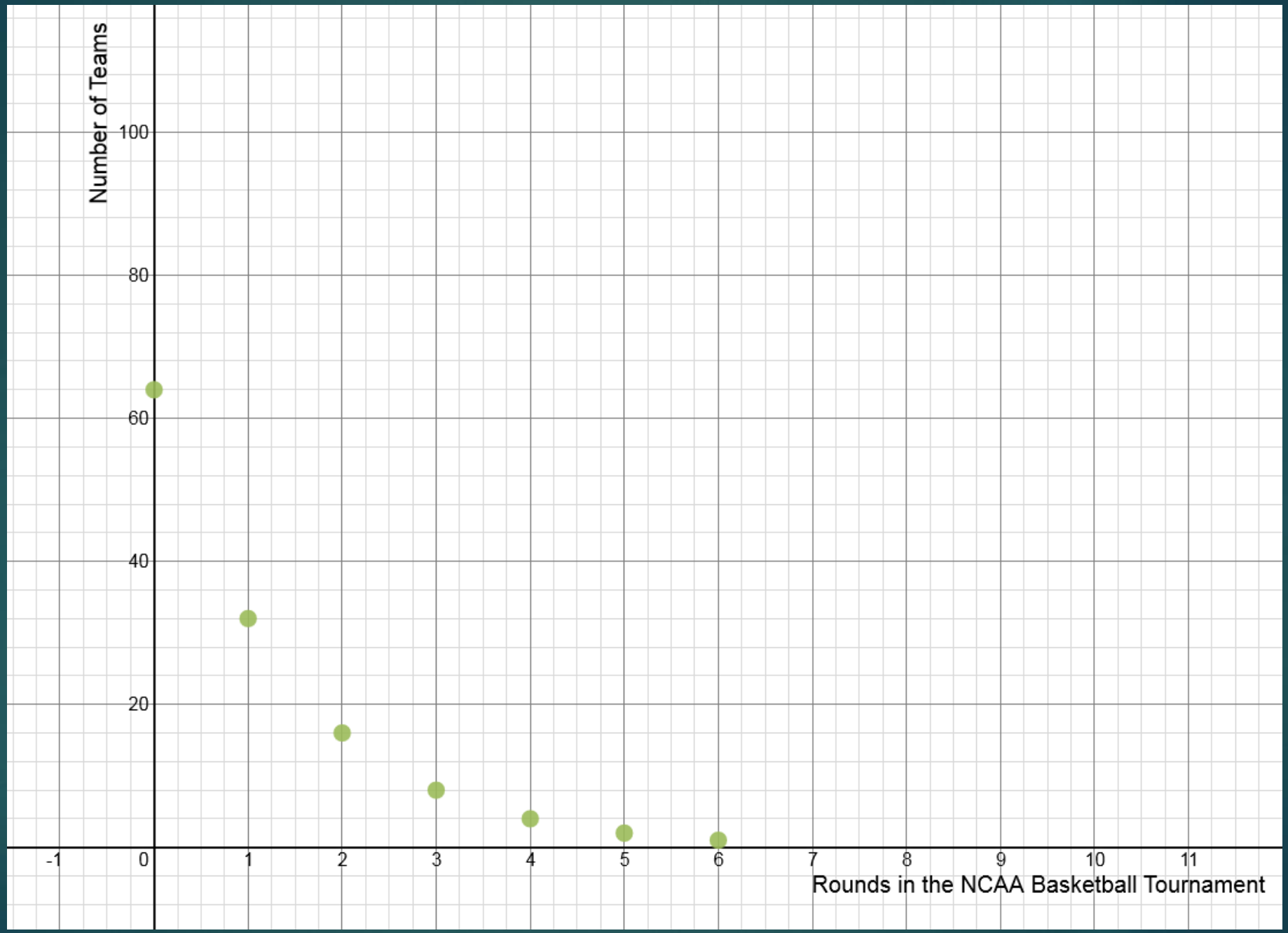
   b. Graph the points from your table on graph paper.

After Round x	Number of Teams Left in Tournament (y)
0	64
1	
2	

3. How many rounds are played in the tournament?

4. Does the graph represent a linear function? Explain.

5. How does the number of teams left in each round compare to the number of teams in the previous round?


Number of Teams
100
80
60
40
20
-1
0
1
2
3
4
5
6
7
8
9
10
11
Rounds in the NCAA Basketball Tournament

$y = 2^x$

x	2^x	y
3		
2		
1		
0		
−1		
−2		
−3		

Is there a difference?

$-2^4 =$

$-2^0 =$

$(-2)^4 =$

$(-2)^0 =$

- exponential function
- growth factor
- decay factor
- asymptote