Write an explicit equation to represent each pattern below. <u>Write your equation in two equivalent forms.</u>

1. Mr. Ramos notices a pattern in the number of people attending the weekly student government meetings. For weeks 1, 2, 3, 4, and 5, the number of students attending the meeting was 31, 43, 55, 67, and 79, respectively.

2. Cameron tracks the growth of leaves on a tree in his yard. Each week, he notes the number of open leaves on the tree. In weeks 1, 2, 3, 4, and 5, the tree has 12, 60, 300, 1500, 7500 leaves, respectively.

3. Good Nights Hotel charges $150 for a room, plus a $25 per guest. Find an explicit equation to represent the nightly cost for any number of guests.

4. In 1995, there were 1000 cell phone subscribers in the small town of Centerville. The number of subscribers over the next four years were 1800, 3240 and 5832 respectively.

5. Given the diagram below, describe the number of sides in Figure x.

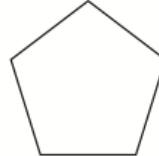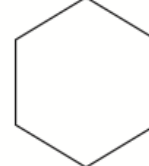| Figure 1	Figure 2	Figure 3	Figure 4

6. Given the diagram that follows, describe the number of blocks in Figure x.
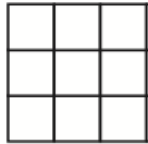
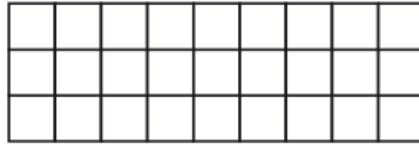Figure 1   Figure 2   Figure 3   Figure 4

7. A rural school uses a phone tree to reach parents when the school is closed. Each parent calls multiple parents to notify them of the school closing. These parents then each call multiple parents, and so on. The diagram below shows the number of parents called after each round of calls. Each dot represents a parent. Find an explicit equation to represent the number of parents called in any round x.
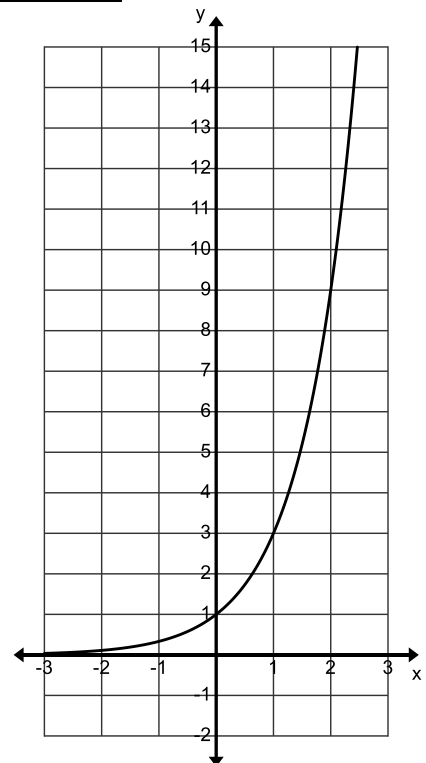
Round 1

Round 2

Round 3
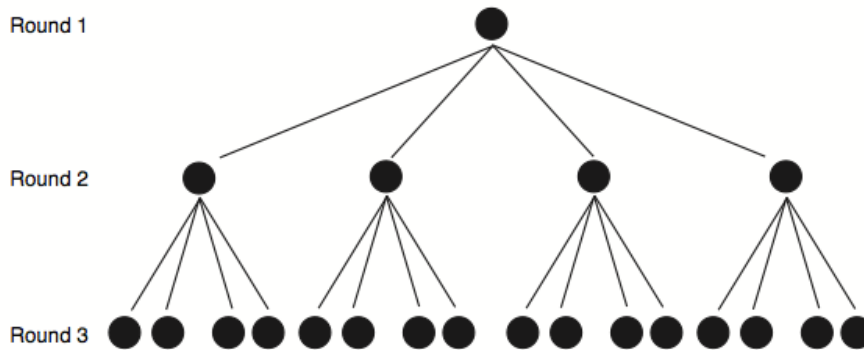
If possible, determine a linear or exponential equation that represents the relationship between x and y in each graph or table that follows. <u>Write your equation in two equivalent forms.</u>

8.
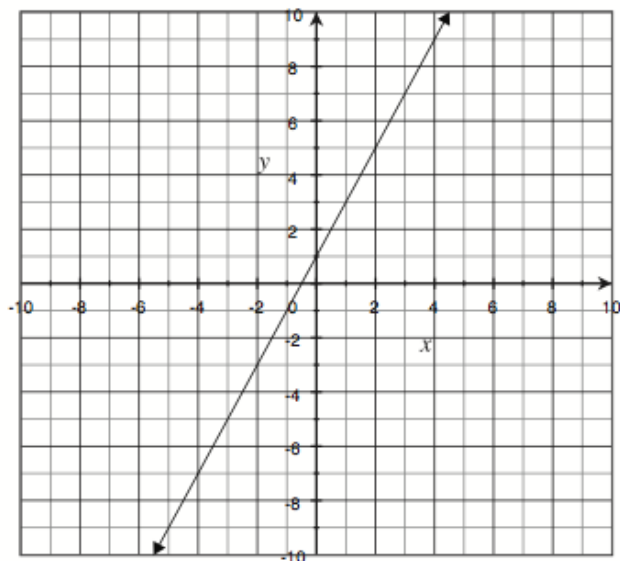
9.

10.

x	y
0	-2
2	-98
3	-686
4	-4802

11.

x	y
0	−14
2	−56
4	−224
5	−448

12.

x	y
0	-12
2	-4
5	28
6	36

13.
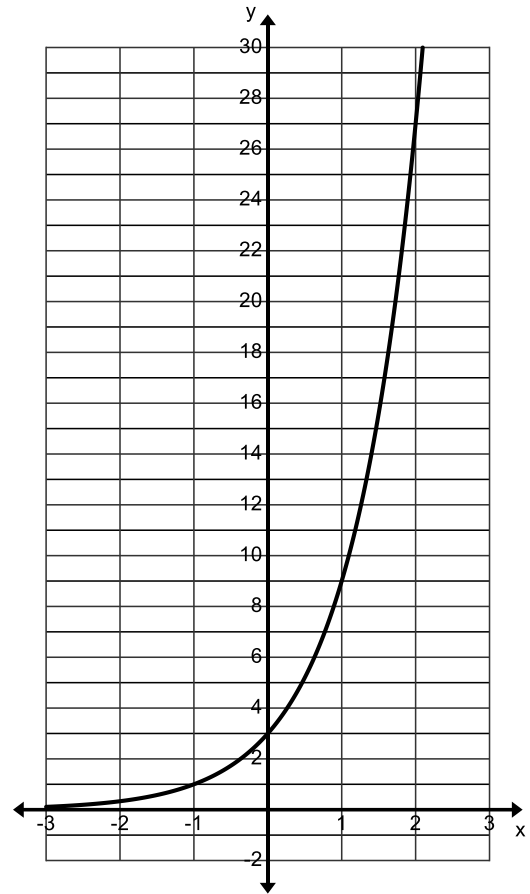
14.
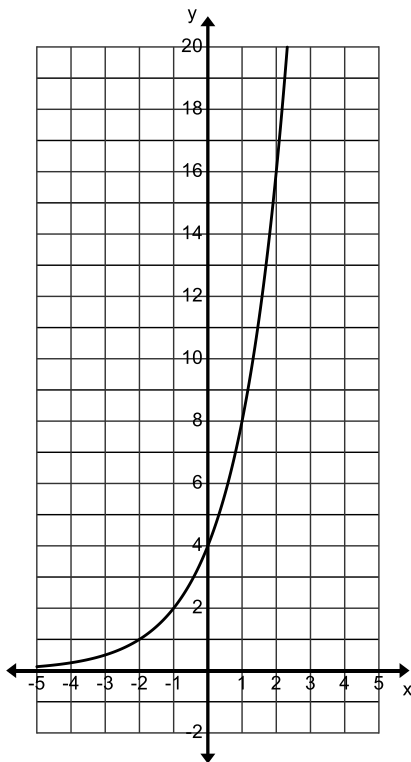
15.

x	y
0	10
2	40
3	160
4	640

16.

x	y
0	−7
1	−56
2	−448
3	−3584

Review:

Identify if the following tables are linear or exponential.

17.

x	y
1	3
2	9
3	27
4	81
5	243

18.

x	y
-7	-30
-6	-27
-5	-24
-4	-21
-3	-18

19.

x	y
5	-27
6	-32
7	-37
8	-42
9	-47

20.

x	y
-6	27
-5	21
-4	15
-3	9
-2	3

21.

x	y
1	-15
2	-45
3	-135
4	-405
5	-1,215

22.

x	y
3	63
4	112
5	175
6	252
7	343

23. An initial population of 750 endangered turtles triples each year.

    a) Write a rule to represent the number of turtles.

    b) What will the population of turtles be after 5 years?

24. An exterminator comes to take care of a mosquito problem. There are 10,600 mosquitos. He gets rid of half of the mosquitos each day.

    a) Write a rule to represent the number of mosquitos.

    b) What will the population of mosquitos be after one week?