

Modeling Algebra

Determine whether each of the following data tables determines a linear relationship or not. Explain your reasoning.

- Suppose you are planning to mow lawns as a summer job. Evidence shows that the area remaining to be mowed is related to the time mowed. Suppose also that you begin with a lawn covering 12,000 square feet.

t	0	5	10	15	20	25	30	35	40
Area remaining	12000	10500	9000	7500	6000	4500	3000	1500	0

- Suppose you place one grain of rice on the corner of a checkerboard, then two grains of rice on the next square, then 4, then 8, etc.

square #	1	2	3	4	5	6	7	8	9
Pieces of rice	1	2	4	8	16	32	64	128	256

- You throw a ball upward from a height of 20 feet.

time	0	0.5	1	1.5	2	2.5	3	3.5	4
height	20	48	68	80	84	80	68	48	20

- Your friend has a job with a starting salary of \$35,000 and a \$500 raise every year.

years on the job	0	1	2	3	4	5	6
salary	\$35,000	\$35,500	\$36,000	\$36,500	\$37,000	\$37,500	\$38,000

x	f(x)
-3	-17
-2	-12
-1	-7
0	-2
1	3
2	8
3	13

x	g(x)
-3	-1
-2	1
-1	3
0	5
1	7
2	9
3	11

y	h(y)
-3	2.5
-2	2
-1	1.5
0	1
1	0.5
2	0
3	-0.5

x	sam(x)
-3	10
-2	5
-1	2
0	1
1	2
2	5
3	10

m	joe(m)
-3	14
-2	4
-1	-2
0	-4
1	-2
2	4
3	14

s	jen(s)
-3	-28
-2	-9
-1	-2
0	-1
1	0
2	7
3	26

x	p(x)
-3	0.125
-2	0.25
-1	0.5
0	1
1	2
2	4
3	8

x	q(x)
-3	8
-2	4
-1	2
0	1
1	0.5
2	0.25
3	0.125