

6.4 Comparing Linear and Nonlinear Functions

Essential Question How can you recognize when a pattern in real life is linear or nonlinear?

EXAMPLE 1 Identifying Functions from Tables

Does the table represent a *linear* or *nonlinear* function? Explain.

a.

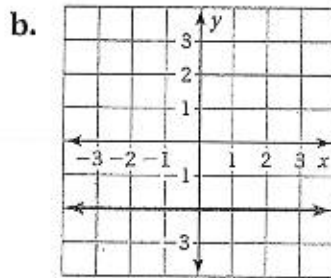
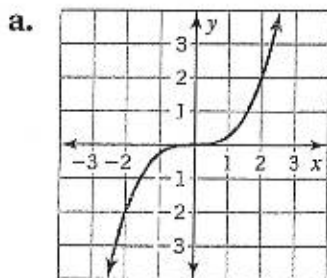
x	3	4	5	6
y	1	2	3	4

b.

x	2	5	8	11
y	4	7	12	19

EXAMPLE 2 Identifying Functions from Graphs

Does the graph represent a *linear* or *nonlinear* function? Explain.



EXAMPLE 3 Identifying a Nonlinear Function

Which equation represents a *nonlinear* function?

(A) $y = 4.7$

(B) $y = \pi x$

(C) $y = \frac{4}{x}$

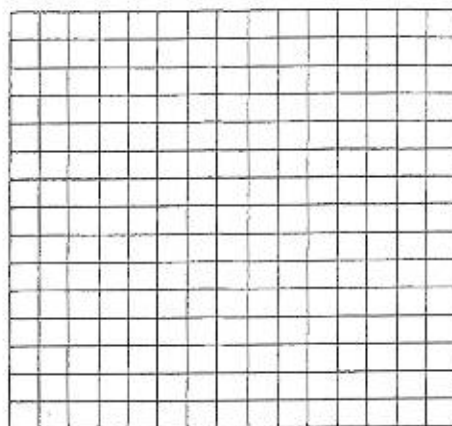
(D) $y = 4(x - 1)$

Does $y = 6x - 3$ represent a *linear* function?

EXAMPLE 4 Real-Life Application

Account A earns simple interest. Account B earns compound interest. The table shows the balances for 5 years. Graph the data and compare the graphs.

Year, t	Account A Balance	Account B Balance
0	\$100	\$100
1	\$110	\$110
2	\$120	\$121
3	\$130	\$133.10
4	\$140	\$146.41
5	\$150	\$161.05



On Your Own

Does the table or graph represent a *linear* or *nonlinear* function? Explain.

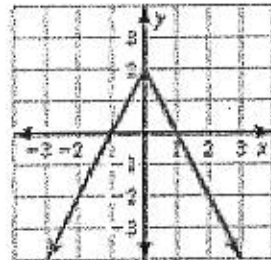
1.

x	y
0	25
7	20
14	15
21	10

2.

x	y
2	8
4	4
6	0
8	-4

3.



Does the equation represent a *linear* or *nonlinear* function? Explain.

4. $y = x + 5$

5. $y = \frac{4x}{3}$

6. $y = 1 - x^2$