Linear Functions

Linear Function: a function whose graph is a slant line. It is in the form of f(x) = mx + b or y = mx + b where:

- y is the dependent variable;
- $\bullet\ x$ is the independent variable which we manipulate to get different results of y;
- *m* is the slope of the line;
- b is the constant term or the y-intercept.

Practice Exercises

A. Fill out the following table. Check Yes if the function is a linear function or No if it is not.

Function	Degree	Yes	No	m	Ь
f(x) = 5x + 1					
f(x) = 3x					
f(x) = -5x - 3					
f(x) = -(x+5)					
$f(x) = 10x^2 + 7x$					

B. Determine whether each function is linear given the table.

												Ο.		
1	Х	-2	-1	0	1	2	4.	Х	5	4	3	2	1	
1.	у	1	2	3	4	5	4.	У	-1	2	5	8	11	
2.	х	-2	-1	0	1	2	5.	×	-2	-1	0	1		
۷.	у	1	0	1	4	9	5.	У	-2 5	2	-1		4 -	7
3.	х	-2	0	2	4	6	1			•	•			
Э.	٧	4	-2	-4	-2	4	1							

Problem Set

A. Fill out the following table. Check Yes if the function is a linear function or No if it is not.

Function	Degree	Yes	No	m	Ь
f(x) = -6x - 7					
f(x) = -4					
f(x) = 2(x-3)					
$f(x) = -4x^2$					
$f(x) = 3x^2 + 1$					

B. Determine whether each function is linear given the table.

·. D	LCI						JII IUII		JII 13	IIIIC	aı e	Sivei	
1	Х	-2	-1	0	1	2	4.	Х	-5 15	-4	-3	-2	-1
1.	у	-3	-1	1	3	5	4.	у	15	11	7	3	-1
i	=	- 1	_	_									
2.	X	1	2	3	4	5 4	-	Х	-3	-1	1	3	5
	у	4	1	0	1	4	5.	у	-16	-6	4	14	24
	х	-2	-1	0	1	2	7						
3.		— <u> </u>	₩.	+-	F-		-						
	У	-1	2	5	8	11							

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1	Х	-2	-1	0	1	2	4.	Х	5	4	3	2	1	
1.	у	1	2	3	4	5	4.	у	-1	2	5	8	11]
2.	×	-2	-1	0	1	2	_	Х	-2	-1	0	1	1 2	2
۷.	у	1	0	1	4	9	5.	у	5	2	-1		4 -	7
3.	X	-2	0	2	4	6								
Э.	у	4	-2	-4	-2	4								
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у	-3	-1	1	3	5	J	у	15	11	7	3	-1
_	- 1	_			_							
X	1	2	3	4	5	_	Х	-3	-1	1	3	5
	4	-1	^	1	4	5		-			-	-
У	4	1	U	1	4	٥.	У	-16	-6	4	14	24
						_	-		_			

x -2 -1 0 1 2 y -1 2 5 8 11

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D. Determine whether							cii iuii	CLIC	JII 13		icai	g١	v C i i	LII
1.	х	-2	-1	0	1	2	1	Х	5	4	3	2	1	7
1.	у	1	2	3	4	5	4.	у	-1	2	5	8	11	
		_	_		- 1	_								
2.	X	-2	-1	0	1	2	_	x	-2	-1	0	:	L	2
۷.	у	1	0	1	4	9	5.	у	5	2	-1	<u> </u>	4	-7
2	X	-2	0	2	4	6			•	•	•			
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1.	Х	-2	-1	0	1	2	1	Х	-5	-4	-3	-2	-1	
1.	у	-3	-1	1	3	5	4.	у	15	11	7	3	-1	
		1	0	2	4	_								,
2.	LX	1	2	3	4	5	_	X	-3	-1	1	3	5	
۷.	У	4	1	0	1	4	5.	у	-16	-6	4	14	24	1
3.	×	-2	-1	0	1	2								
٥.	v	-1	2	5	8	11	7							

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	У	1	2	3	4	5		у	-1	2	5	8	11]
2.	×	-2	-1	0	1	2	_	х	-2	-1	0	1		2
۷.	у	1	0	1	4	9	5.	у	5	2	-1		4 -	7
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		-	_	_		_		_					
2	X	1	2	3	4	5	-	X	-3	-1	1	3	5
۷.	У	4	1	0	1	4	5.	v	-16	-6	4	14	24
								<u> </u>					

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