

# Linear Function

## SUMMARY

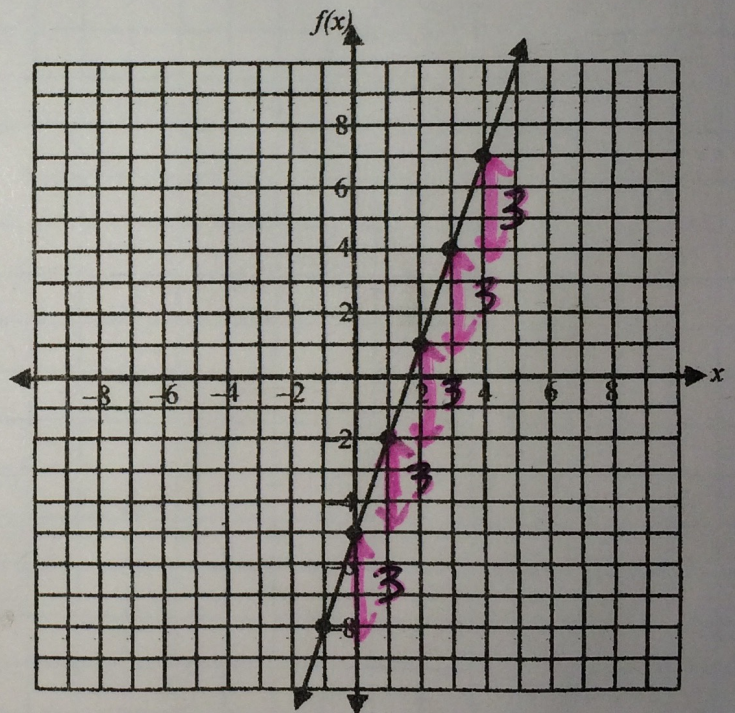
<b>Rate of Change</b>	CONSTANT (Constant 1 <sup>st</sup> difference)
<b>Graph</b>	LINE (rate of change is Slope)
<b>Equations: Recursive</b>	Previous term plus ADDITION of constant term (# only)
<b>Explicit</b>	Highest power term is x

- Repeated ADDITION of a constant value → can be rewritten as a PRODUCT  
ex:  $5 + 5 + 5 + 5 = 5(4)$
- ARITHMETIC sequence is a type of linear function with a restricted domain, usually to whole or natural numbers.

### Example:

x	f(x)	1 <sup>st</sup> diff.
-4	-17	
-3	-14	+3
-2	-11	+3
-1	-8	+3
0	-5	+3
1	-2	+3
2	1	+3
3	4	+3

CONSTANT rate of change



### Recursive Equation:

$$f(1) = -2; f(x) = f(x - 1) + 3$$

An input of 1 gives an output of -2 ; the output when x is the input = the previous value + 3

### Explicit Equation:

$$f(x) = -2 + 3(x - 1)$$

For any term, start with -2 and add 3 for every term after the first.