Warm Up/Summary/Discussion/etc.

Example 1:

x	f(x)
-1	0
0	3
1	6
2	9
3	12
4	15
⋮	⋮

+3 +3 +3

3(2) 3(3) 3(4)

{ …(0,3), (1,6), (2, 9), (3, 12)… }

Linear/Exponential/Neither?

Continuous or Discrete?

Domain? ℤ

Sequence? Not a sequence b/c domain ≠ ℕ

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

$3x+3$

2. Make equations and a graph for the sequence that is given below.

Example 4

2, 6, 18, ...

x	
1	2
2	2·3
3	2·3·3
4	$2 \cdot 3^3$
x	$2\,3^{x-1}$

Lin / Exp / Neither ?

$f(x) = 2 \cdot 3^{x-1}$ (×3)

Discrete / Continuous ?

Domain = $\mathbb{N}$

Sequence? Geometric b/c

Domain = $\mathbb{N}$

3. Are sequences discrete or continuous? Why?

b/c domain = $\mathbb{N}$

3. Are sequences discrete or continuous? Why?

What is the domain for arithmetic and geometric sequences?

Add to your summary of sequences so that it includes some specifics about the domain.

Make sure you know how to use set notation to write show domain.

So, if a sequence is always discrete and has a limited domain. What type of relationships are continuous for the same types of patterns?

A continuous arithmetic is not arithmetic but is called _____?

And a continuous geometric is not geometric but is called _____?

As a matter of fact sequences are rather special any time we have something with a domain that is different than the natural numbers we would look to use a "linear" or "exponential" model.
Unless otherwise specified we assume the domain for linear and exponentials as all Real numbers.

Make sure you know how to write this using set notation.

Add to your notes a diagram to show how linear, exponential, arithmetic, geometric, discrete, continuous and so forth all fit together.

For each of the following determine whether it is a sequence or not. Then determine if it is linear or exponential.

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x	$f(x)$
0	-57
1	-47
2	-37
3	-27
4	-17
5	-7

+1 +10

For each of the following determine whether it is a sequence or not. Then determine if it is linear or exponential.

x	$f(x)$
-2	0
1	12
4	24
7	36
13	60
16	72

+3 +3 +3 +6 +12

+12 +12 +12 +24 +12

Linear ✓

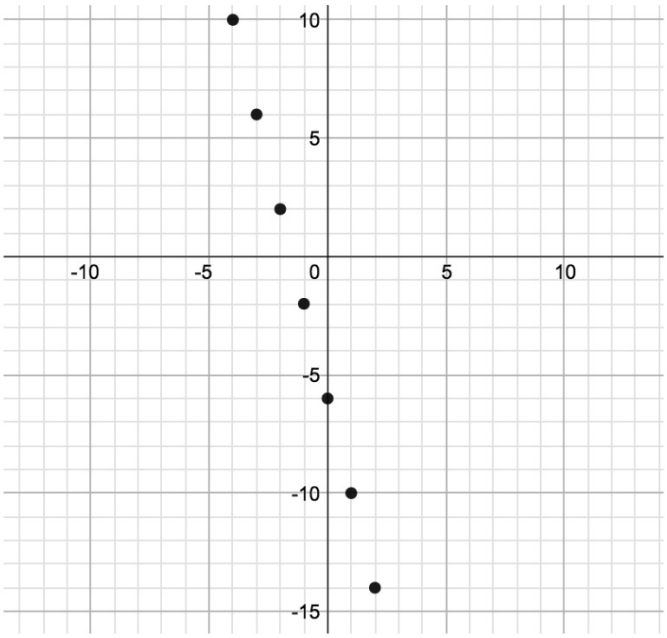
For each of the following determine whether it is a sequence or not. Then determine if it is linear or exponential.

x	$f(x)$
0	12
1.5	6
3	0
4.5	-6
7.5	-18
9	-24

For each of the following determine whether it is a sequence or not. Then determine if it is linear or exponential.

x	$f(x)$
0	-6
1	-12
2	-24
4	-48
6	-96

For each of the following determine whether it is a sequence or not. Then determine if it is linear or exponential.



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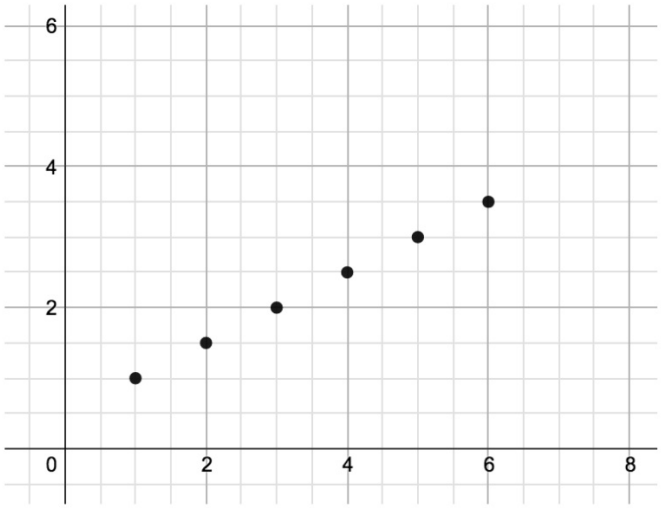

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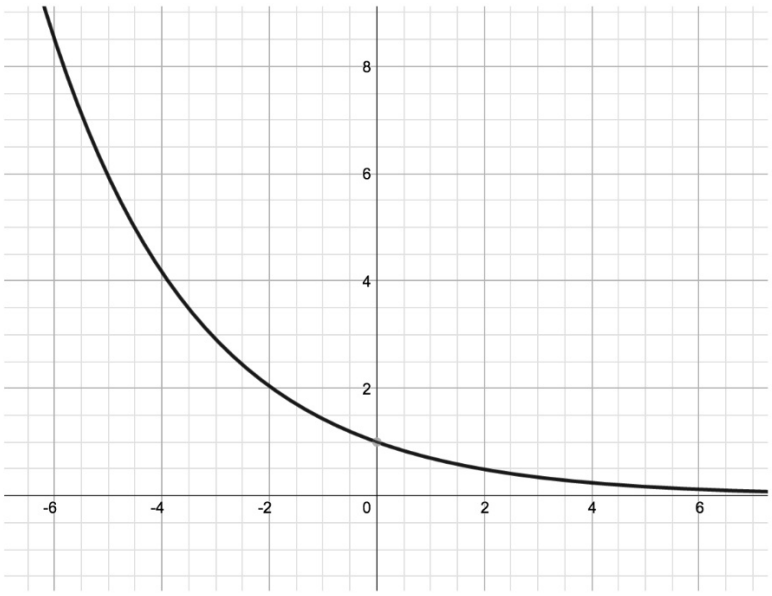
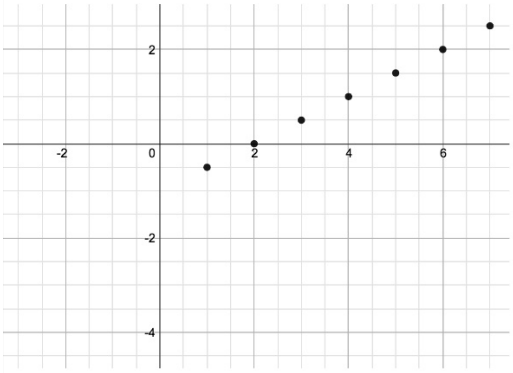
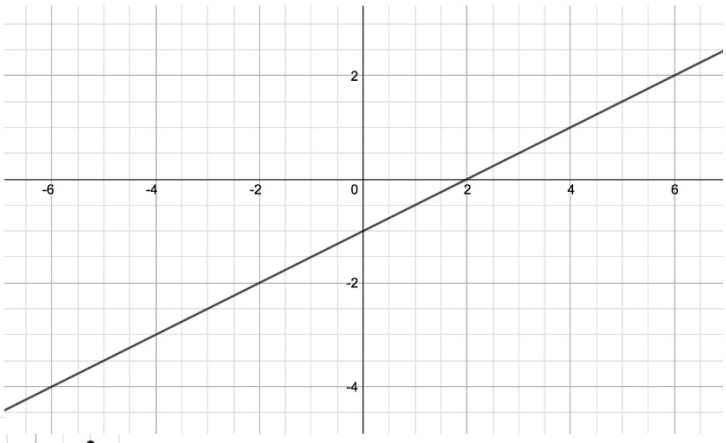
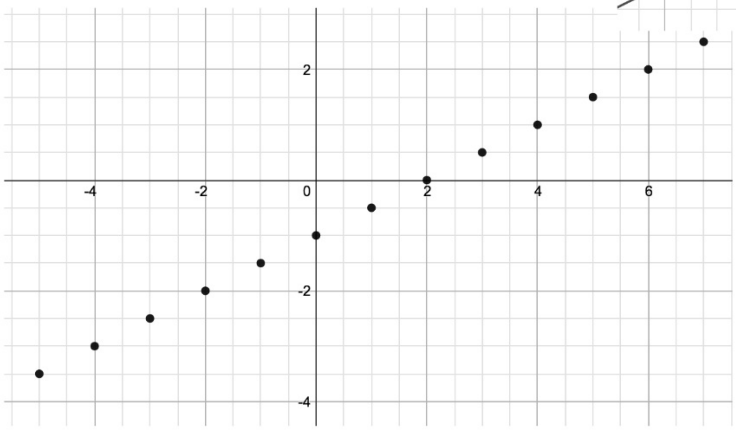


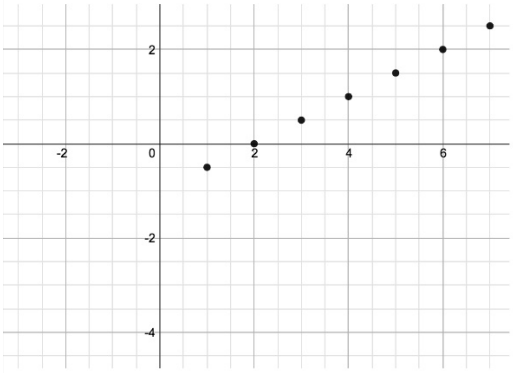
What is the difference between the graphs below?

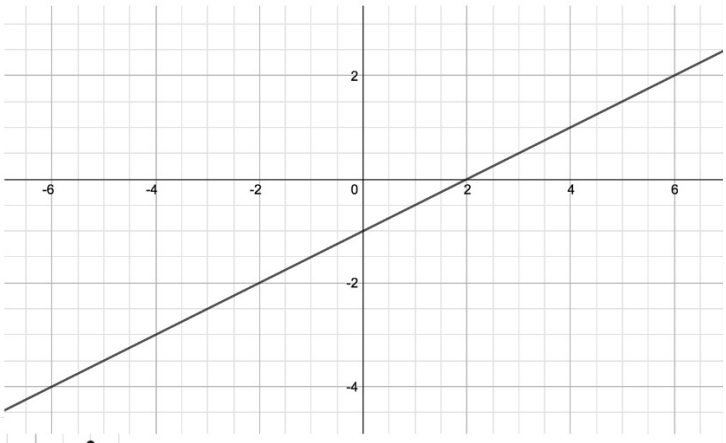


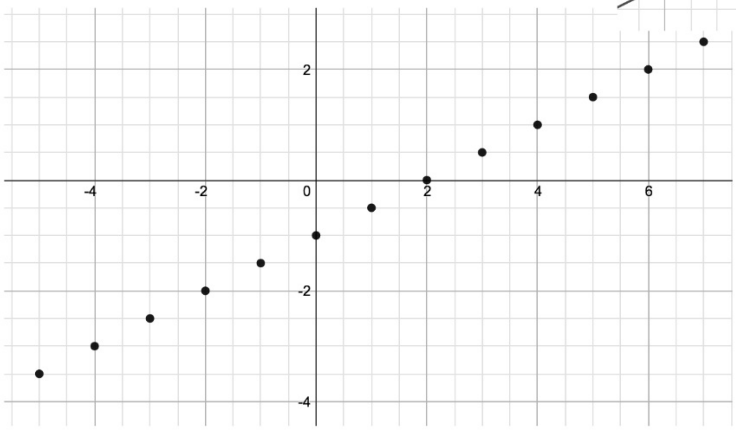




What is the difference between the graphs below? Is there a function that fits all of them?







Use the function rules that are given to fill in the tables.

$f(n) = f(n-1) \times 5; f(1)=2$

n	f(n)
1	
1.5	
3	
7.3	

Use the function rules that are given to fill in the tables.

$f(n) = 5^{x-1}(2)$

n	f(n)
1	
1.5	
3	
7.3	

Use the function rules that are given to fill in the tables.

$f(n) = f(n-1) - 7; f(1)=3$

n	f(n)
-1	
2	
3.2	
10	

Use the function rules that are given to fill in the tables.

$f(n) = -7n+10$

n	f(n)
-1	
2	
3.2	
10	

$f(x) = 3 \cdot 2^x$

Interval	x	f(x)
+1	0	3
	1	×2 → 6
+2	2	+3 → 6
	3	×4 → 24
+4	7	+4 → 48
	9	×16 → 384
		×4 → 1536

$x_2 - x_1 \sqrt{\frac{y_2}{y_1}}$

Ln/Exp/Natn

2

$\sqrt[2]{4} = 2$

$\sqrt[4]{16} = 2$

$\sqrt[2]{4} = 2$

16

4 4

2 2 2 2

$\sqrt[4]{16}$