

Foundational Problem Review

Advanced Algebra

Review #2 for the Unit 1 Test

Name _____

Date _____

Write the correct recursive rule for the relationship shown in the following tables.

n	U_n
1	2
3	6
6	12
7	14

n	U_n
1	5
4	17
7	29
10	41

You need to be able to do the foundational quickly if you are to make it through HC!

$$\frac{6-2}{3-1} = \frac{4}{2} = 2$$

$$U_1 = 2$$

$$U_n = 2 + U_{(n-1)}$$

$$n \geq 1$$

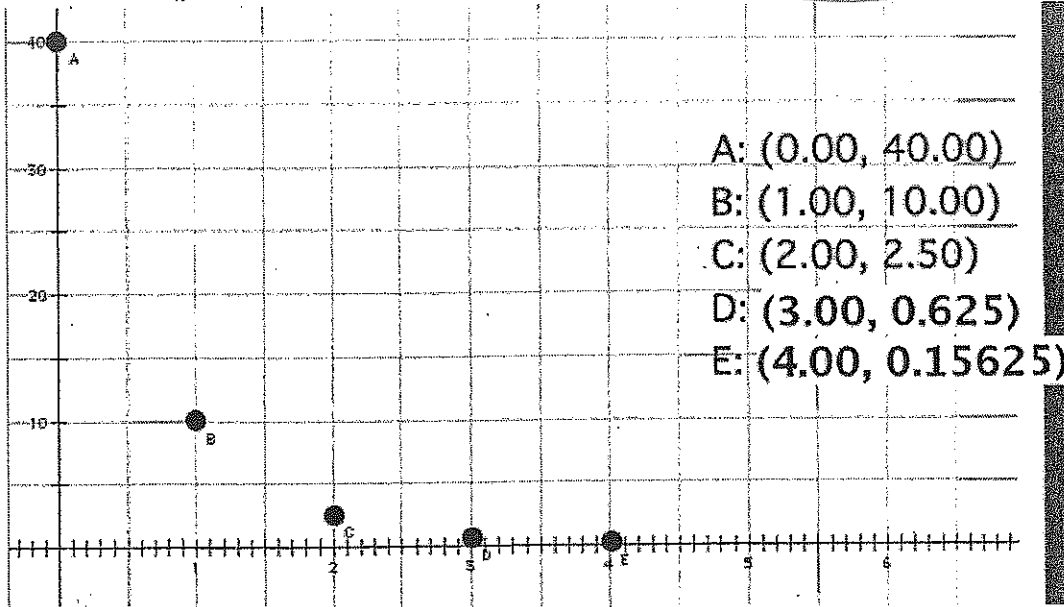
$$\frac{17-5}{4-1} = 4$$

$$U_1 = 5$$

$$U_n = U_{(n-1)} + 4$$

$$n \geq 2$$

4. A sequence, t_n , is displayed on the graph below.



- A: (0.00, 40.00)
- B: (1.00, 10.00)
- C: (2.00, 2.50)
- D: (3.00, 0.625)
- E: (4.00, 0.15625)

- a. Write a recursive formula and a closed formula for the sequence.
- b. Find t_{10} . (Write exactly what your calculator shows.)

<p>Part A:</p> $U_0 = 40$ $U_n = 0.25 \cdot U_{(n-1)}$ $n \geq 1$ $y = 40(.25)^x$	<p>Part B:</p> $40(.25)^{10}$ <div style="border: 1px solid black; padding: 5px; display: inline-block;"> $.00003814$ </div>
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Write a recursive formula for the following explicit (direct) formula given.

$y = 8 - 2x$

$y = -2x + 8$
 $U_1 = 6$
 $U_n = U_{(n-1)} - 2$
 $n \geq 2$

$y = 10(1.3)^x$

$U_0 = 10$
 $U_n = 1.3 \cdot U_{(n-1)}$
 $n \geq 1$

Beth bought a car for \$19,500. The car depreciates at a rate of 14% per year. Write the correct direct formula for this scenario.

$y = 19,500(1 - .14)^x$
 $19,500(.86)^x$

How many numbers in a sequence do you need to have a defined sequence?

~~More than 2~~

At least 3

How many different sequences could you make with 8, 2,

A	B	C	D
0	1	2	More than 2

You borrow \$1,000. The APR on the loan is 9% compounded monthly. You also make \$250 payments every month. Write the correct recursive formula and find how long it will take to pay off the loan

5 months

~~$U_0 = 1,000$
 $U_n = (1 + \frac{.09}{12}) \cdot U_{(n-1)} - 250$~~

$U_n = (1 + \frac{.09}{12}) \cdot U_{(n-1)} - 250$
 $n \geq 1$

$4 \mid 19.03$
 $5 \mid -230.8$

$19.03(1 + \frac{.09}{12})$
 19.17

$4 \times 250 + 19.17 = \$1,019.17$
 TOTAL PAID