

Warmup

*Homework is due tomorrow - no late homeworks will be accepted

Write the recursive and explicit formulas for the following sequences

1) -1, 1.5, 4, 6.5...

+2.5
 $d = 2.5$
 $A_1 = -1$
Exp
 $A_n = -1 + 2.5(n-1)$
 $-1 + 2.5n - 2.5$
 $-3.5 + 2.5n$

Rec
 $A_1 = -1$
 $A_n = A_{n-1} + 2.5$

2) $a_1 = 10.5$ $d = 3$

Exp
 $A_n = 10.5 + 3(n-1)$
 $10.5 + 3n - 3$
 $7.5 + 3n$

Rec $A_1 = 10.5$
 $A_n = A_{n-1} + 3$

3) $a_5 = 32$ $d = -5$

47 42 37 32
Exp
 $57 - 5n$

Rec
 $A_1 = 52$
 $A_n = A_{n-1} - 5$

Something to Chew On



A Solidify Understanding Task

The Food-Mart grocery store has a candy machine like the one pictured here. Each time a child inserts a quarter, 7 candies come out of the machine. The machine holds 15 pounds of candy. Each pound of candy contains about 180 individual candies.

1. Represent the number of candies in the machine for any given number of customers. About how many customers will there be before the machine is empty?

Exp
 $-7x + 2700$

Rec
 $A_1 = 2693$
 $A_n = A_{n-1} - 7$

$$\frac{2700}{7} = 385.7$$

386 people

equations tables answers

2. Represent the amount of money in the machine for any given number of customers.

$0.25 = 1 \text{ person}$
 Exp
 $0.25n$

Rec
 $A_1 = 0.25$
 $A_n = A_{n-1} + 0.25$

386×0.25
 $\$96.50$

peeps	\$
0	0
1	0.25
2	0.50
3	0.75

} + 0.25

3. To avoid theft, the store owners don't want to let too much money collect in the machine, so they take all the money out when they think the machine has about \$25 in it. The tricky part is that the store owners can't tell how much money is actually in the machine without opening it up, so they choose when to remove the money by judging how many candies are left in the machine. About how full should the machine look when they take the money out? How do you know?

3/4 full
 $\$25 \rightarrow 100 \text{ people}$
 $\times 4 \rightarrow \times 7 \text{ candies}$

700 candies
 $2700 - 700 = \frac{2000}{2700} = 0.74 \times 100 = 74\%$

$\approx 75\% \text{ full}$

Explicit + Recursive

1) 2700, 2601, 2502...

2) 14, 17, 20, 23...

3) $-\frac{1}{2}, -\frac{1}{4}, 0, \frac{1}{4}, \frac{1}{2}$...

4) $a_4 = -31$ $d = 4$
Find 46th term