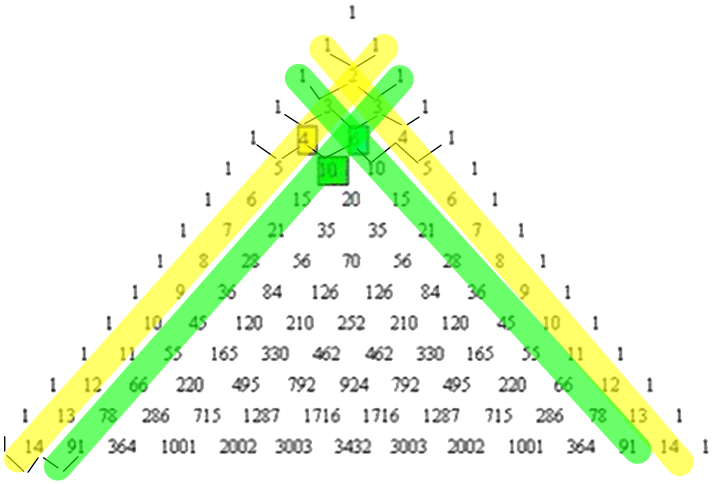
Section 4.1

Writing Equations to Describe Patterns



Pascal's Triangle

Oct 6-12:58 PM

Let's look at it again.

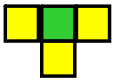


Figure 1

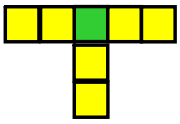


Figure 2

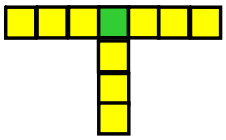


Figure 3

x Figure #	y # of Blocks
1	4
2	7
3	10
4	13
5	16

+1 ( ) +3 each row

THUS

Write an equation that relates the number of blocks, n, to the figure number, f.

$y = \frac{3}{1}x + 1$

$y = \frac{\Delta y}{\Delta x} x + \#$

(Common difference) x Figure + #

Oct 6-1:01 PM

Is there a pattern?

x Figure #	y # Circles
1	1
2	3
3	5
4	7
5	9
6	11

+1 +1 +1 +1 +1) +2) +2) +2) +2) +2

Write an equation that relates the number of circles, y, to the figure number, x.

$y = \#x \pm \#$

$y = \frac{2}{1}x - 1$

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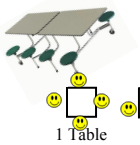


How many people can sit at the tables?
(only one person per edge)

Table Seating

1 Table 2 Tables 3 Tables 4 Tables

t # of tables	P # of people	Patttern
1	4	☆
2	6	☆
3	8	☆
4	10	☆
⋮		
t	2t+2	☆

+1 +1 +1) +2) +2) +2

$P = \#t \pm \#$

$P = 2t + 2$

$t = 100$

$P = 2t + 2$

$P = 2(100) + 2$

$P = 202$

Oct 6-3:40 PM

UNIT 4: VOCABULARY

1. Constant: Expressions and equations used to represent relations have what is called a "~~constant~~". Its value NEVER changes.

Dec 3-8:46 AM

T- Tables

or

Input/Output tables

x	y
1	3
2	8
3	13
4	18
5	23
6	28
⋮	⋮
50	248

+1 (5) +5; +1 +5; +1 +5; +1 +5; +1 +5

- Write an expression for the relationship

$y = \frac{\Delta y}{\Delta x} x \pm \#$

$y = \frac{5}{1} x - 2$

Equation

Expression

$5x - 2$

$y = 5(50) - 2$

$y = 250 - 2$

$y = 248$

Mar 9-4:43 PM

T- Tables or Input/Output tables

x	y
1	-3
2	-7
3	-11
4	-15
5	-19
6	-23
.	.
.	.
.	.
100	

+1 +1 +1 +1 +1

-4 -4 -4 -4

Write an expression for the relationship

$\frac{-4x+1}{1}$

Write an equations

$y = \frac{\Delta y}{\Delta x} x \pm \#$

$y = \frac{-4}{1} x + 1$

$y = -4(100) + 1$

$y = -400 + 1$

$y = -399$

Mar 9-4:43 PM

T- Tables or Input/Output tables

x	y
1	-2
2	6
3	14
4	
5	
6	
.	
.	
.	
100	

Write an expression for the relationship

Write an equations

Mar 9-4:43 PM

T- Tables or Input/Output tables

x	y
0	5
2	9
4	13
6	17
8	21
.	.
.	.
100	

+2 +2 +2 +2 +2 (2) (2) (2)

+4 +4 +4 +4

Write an expression for the relationship

$2x+5$

Write an equations

$y = \frac{\Delta y}{\Delta x} x \pm \#$

$y = \frac{4}{2} x \pm \#$

$y = 2x \pm \#$

$y = 2x + 5$

$y = 2(100) + 5$

$y = 205$

Mar 9-4:43 PM

Equation

$$y = \left(\frac{\text{Change y}}{\text{Change x}}\right)(\text{"x"}) \pm \#$$

$$y = \frac{\Delta y}{\Delta x} x \pm \#$$

X → independent

y → dependent

Nov 13-11:27 AM

Try these

For n = 2, solve for each of the following

1) P = 5n +6 2) K = 4n-1 3) W= 10n - 5

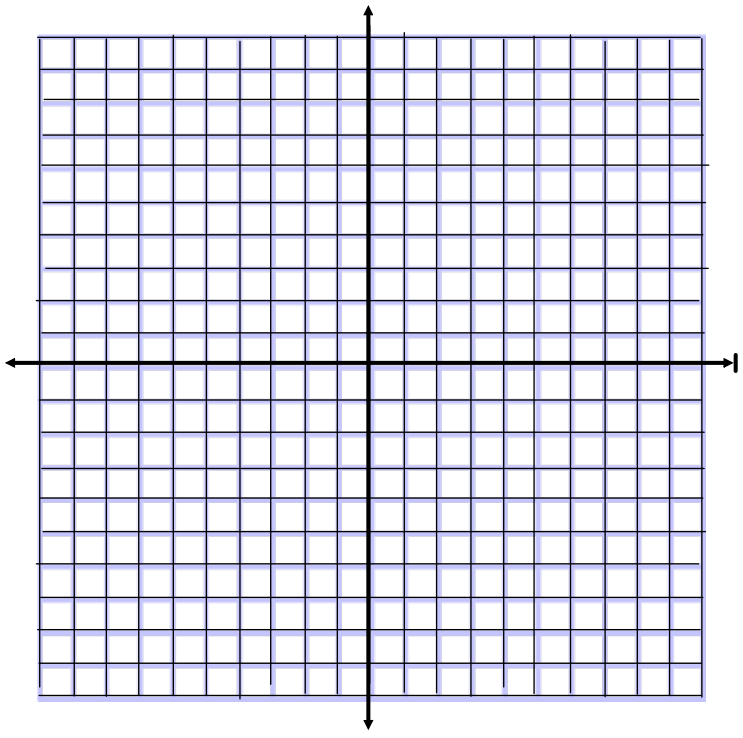
For n = -5, solve for each of the following

1) P = 5n +6 2) K = 4n-1 3) W= 10n - 5

Dec 1-9:08 AM

Recall

Qu
Qu
Qu
Q



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Class/Homework

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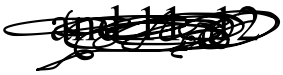

Must Show ALL WORK

Nov 30-6:21 PM