Curriculum Outcomes:

(PR1) Generalize a pattern arising from a problem-solving context using linear equations and verify by substitution.

(PR2) Graph linear relations, analyze the graph and interpolate or extrapolate to solve problems.

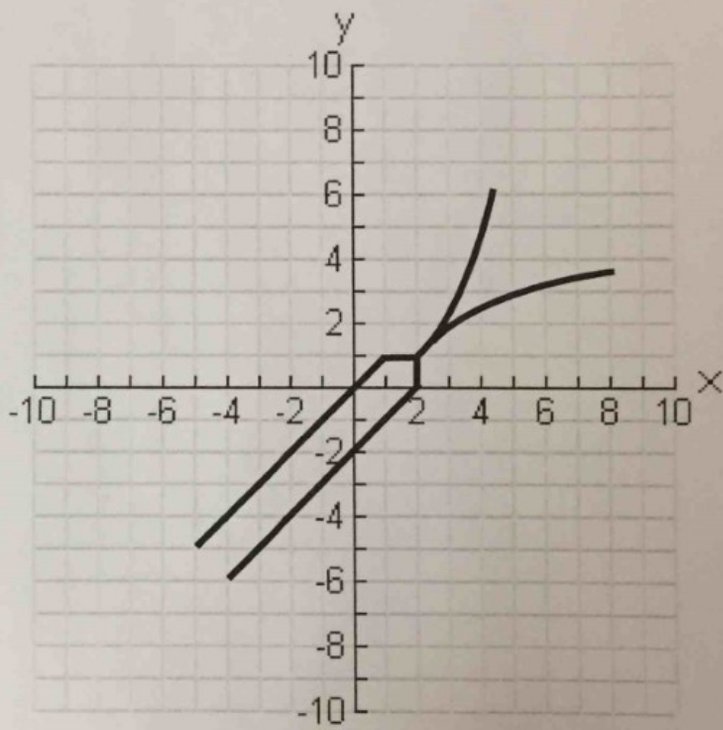
Student Friendly: Being able to identify a linear pattern in a t-table.

Coordinate Graphing Pictures

Plot the points and connect the dots in order.

(2, 0)
(3, 1)
(5, 2)
(7, 2)
(8, 1)
(8, -1)
(6, -3)
(4, -4)
(2, -4)
(0, -3)
(0, -5)
(-1, -8)
(-2, -9)
(-4, -9)
(-5, -8)
(-4, -6)
(-5, -6)
(-5, -5)

(-7, -6)
(-8, -5)
(-8, -3)
(-7, -2)
(-4, -1)
(-2, -1)
(-3, 1)
(-3, 3)
(-2, 5)
(0, 7)
(2, 7)
(3, 6)
(3, 4)
(2, 2)
(1, 1)



Math Out Loud

A quick, fun and engaging way of evaluating a student's mastery of graphing! These little exercises can be used as warm-ups, bonus questions, or brain breaks.

Coordinate Graphing Pictures

Plot the points and connect the dots in order.

(2, 0)
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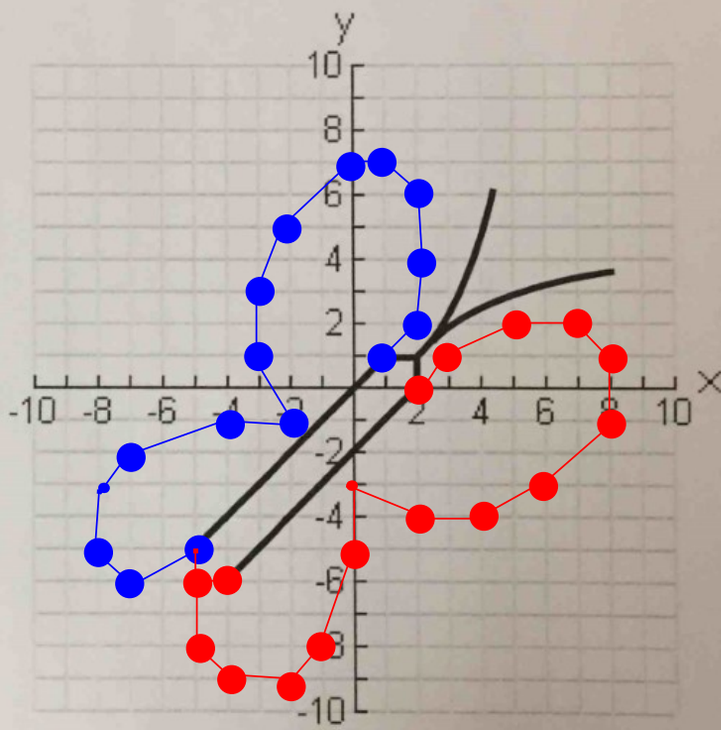

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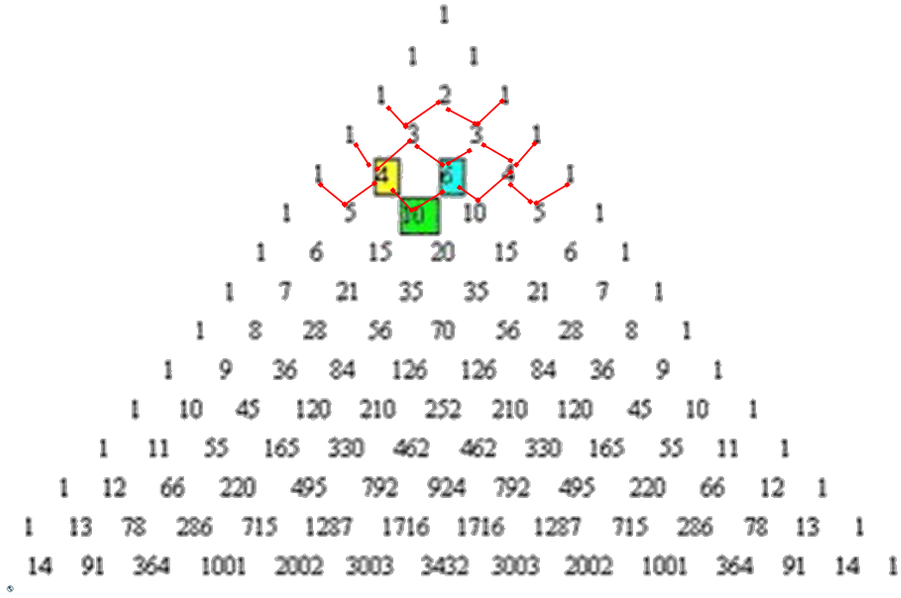
Section 4.1

Writing Equations to Describe Patterns



Pascal's Triangle

Look at each figure is there a pattern?

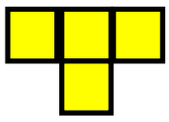


Figure 1

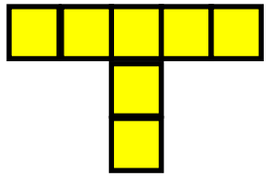


Figure 2

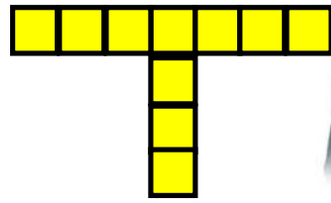


Figure 3

See next slide if you need more help seeing the pattern

f ×3 +1 → B

Figure #	# of Blocks
1 (×3 +1)	4 (+3)
2 (×3 +1)	7 (+3)
3 (×3 +1)	10 (+3)
4 (+1)	13 (+3)
5	16

$$B = 3f + 1$$

Is there a pattern?

f Figure #	c # Circles
1	1
2	3
3	5
4	7
5	9
6	11

+1 (x2) +2

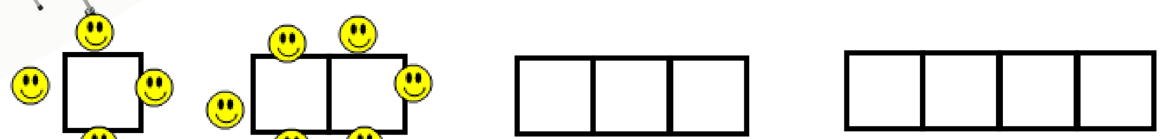
Write an equation that relates the number of circles, c, to the figure number, f.

c = ? f ± #

$c = 2f - 1$

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

Table Seating



1 Table 2 Tables 3 Tables 4 Tables

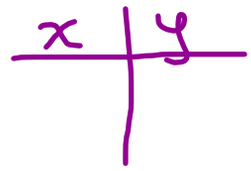
# of tables (T)	# of people (P)
1 ×2	4
2 ×2	6
3 ×2	8
4	10
5	12
6	14
t	___

+1 +1 +1 (down the table numbers); +2 +2 +2 (down the people numbers)

Pattern:
The table # incease

$$P = \frac{2}{1}t + 2$$

UNIT 4: VOCABULARY



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

$y = ?x \pm \#$

? ↑ table

↑ head

T- Tables or Input/Output tables

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

+1 (x5) +5

+1 (x5) +5

+1 (x5) +5

Write an expression for the relationship

$y = ?x \pm \#$

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

T- Tables or Input/Output tables

x	y
1	-3
2	-7
3	-11
4	-15
5	-19
6	-23
.	
.	
100	-399

+1 +1 +1 −4 −4 −4

x-4 x-4 x-4

Write an expression for the relationship

Write an equations

$y = ?x \pm \#$

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

$x = 100 \quad y = ?$

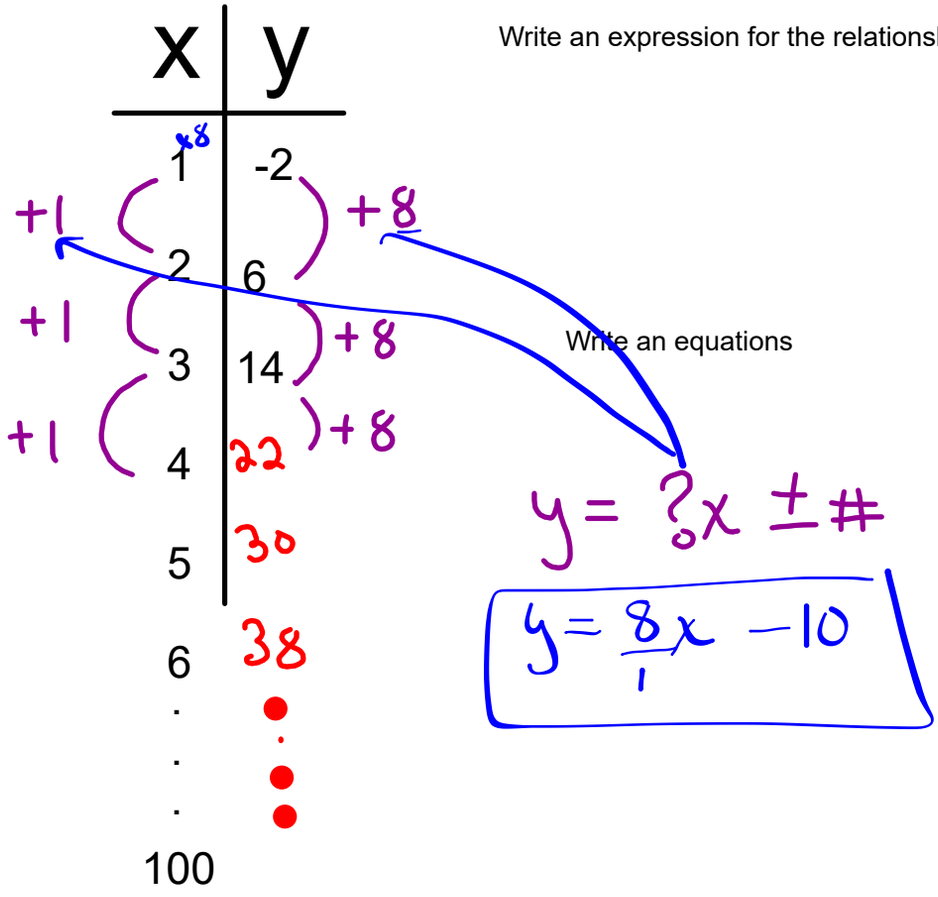
$y = -4x + 1$

$y = -4(100) + 1$

$y = -400 + 1$

$y = -399$

T- Tables or Input/Output tables



Equation

x	y
—	—
—	—

Δx Δy

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

X → independent

y→ dependent

Try these

For [redacted] solve for each of the following

[redacted]

P=5(2) +6

p= 10+6

p= 16

For [redacted], solve for each of the following

[redacted]