9.2 Patterns in Linear Relationships

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Linear relationships are found where the increase or decrease is consistent for each item in the data set. The data sets do not need to have the same pattern as each other (ex: a - increase by 2, b - decrease by 3 means its Linear)

a)

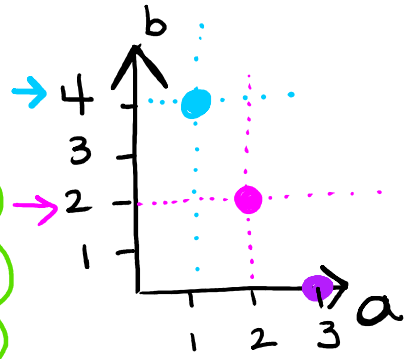
IND. DEP

a	b
1	4
2	2
3	0

Look @ Patterns

+1 -2

Consistent Patterns Yes.



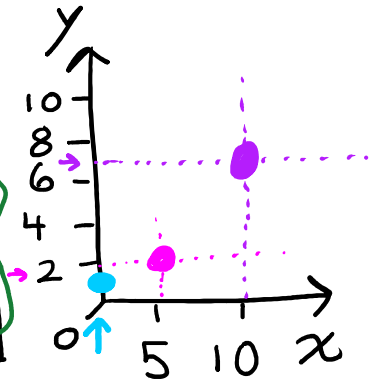
Yes. Linear points make a straight line

b)

x	y
0	1
5	2
10	7

+5 +1 then +5

y pattern inconsistent. Not Linear.



NO. There is a bend in the Line.

Creating Equations from Tables

goal How do I change my Independent to create my dependent?

*ALWAYS multiply to and add or subtract from the Independent.

Create Equations given the tables:

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1.

Ind Dep

x	y
1	5
2	10
3	15

+1 +1 +5

dependent pattern is coeff numerator
Independent pattern is coeff denominator
on Independent

$\frac{5}{1}(x) = y$

same as

$5x = y$

2.

x	y
0	4
1	7
2	10

+1 +1 +3 +3

Step 1 - Use pattern to find coefficient

Step 2 - pick 1 set (x, y) to test and edit the equation

$\frac{3}{1}x + 4 = y$

$3(0) + 4 = 4$

Re-write → $3x + 4 = y$

3.

a	b
0	3
1	1
2	-1

+1 -2

$-2(0) + 3 = 3$

$\frac{-2}{1}a = b$

$-2a + 3 = b$

4.

i	d
-2	-8
-1	-7
0	-6

+1 +1

$\frac{1}{1}i = d$

$0 - 6 = -6$

$i - 6 = d$

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Use substitution to create a TOV when given an equation. If the table is empty, you CHOOSE the values for INDEPENDENT (0, 1, 2, 3) and substitute them each into the eqn to solve for the dependent

ex. Given $\overset{\text{DEP}}{h} = 5\overset{\text{IND}}{d} + 10$, create a tov with 5 data sets.

INDEP.	DEP.	
d	h	5(d) + 10
0	10	5(0) + 10 = 10
1	15	5(1) + 10 = 15
2	20	5(2) + 10 = 20
3	25	5(3) + 10 = 25
4	30	5(4) + 10 = 30

YOU PICK

Finish the Linear Rel. Worksheet from Weds.