

(Patterns)  
5.3 Finding Relationships in Data

For each of the following tables of values determine the rule, in words, then write the rule as an equation.

X	Y
-10	30
-5	15
0	0
7	-21
12	-36

Rule: Mult. x by -3 to obtain y.  
Eqn:  $y = -3 \cdot x$

X	Y
0	5
2	7
4	9
6	11
8	13

Rule: Add 5 to x to obtain y.  
Eqn:  $y = x + 5$

X	Y
-4	14
-1	-1
0	-2
3	7
6	34

Rule: Square x and Subt. 2.  
Eqn:  $y = x^2 - 2$

X	Y
0	1
1	3
2	5
3	7
4	9

Rule: Mult x by 2 and add 1  
Eqn:  $y = 2x + 1$

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Example:  
A beaker is weighed after different volumes of water are poured into it

a) Identify a pattern in the data  
We add 148 to x to obtain y.

X Volume of Water (mL)	Y Mass of Beaker and Water (g)
0	148
30	178
60	208
90	238
120	268

b) Graph the data

c) Determine the equation for the data  
 $y = mx + b$   
 $y = 1x + 148$

d) Determine the mass of the beaker if it has 210 mL of water in it.  
 $y = 210 + 148$   
 $y = 358g$

Pg. 269 2, 3, 6, 8, 10, 11

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