9.2 Patterns in Tables of Values

Example 1: Identify the Relationship in a Table of Values

The pattern in the table of values represents a linear relation.

A x	B y
0	0
1	3
2	6
3	9
4	12

(+1, +1, +1, +1 on A; +3, +3, +3, +3 on B)

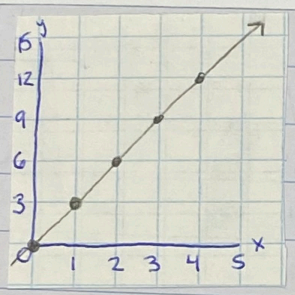
a) Graph the ordered pairs in the table of values.

b) What is the difference in value for consecutive A-values? for consecutive B-values?

c) Describe in words the relationship between the values for A and B.

d) What is an expression for B in terms of A?

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



c) B-value increase by 3, while A-values increase by 1.

d) $y = mx + b$ $\quad y = mx + b$

$m \rightarrow$ slope $\rightarrow$ change $\frac{\Delta y}{\Delta x}$ $\quad y = 3x$

$b \rightarrow$ y-intercept, y when $x = 0$

Example 2: Use a Table to Determine a Linear Relation

For each table of values below, answer the following questions:

a) What is the pattern in the values for the first variable in each table?

b) What is the difference in consecutive values for the second variable in each table? Is the difference within each table the same?

c) Graph each set of ordered pairs. Which relations are linear?

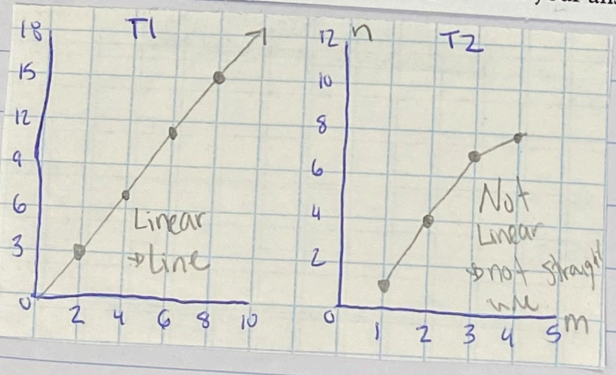
d) How does your answer in part c) compare with your answer in part b)?

Table 1 (+2, +2, +2; +4, +4, +4)

x	2	4	6	8
y	3	7	11	15

Table 2 (+1, +2, +3; +3, +3, +1)

m	1	2	3	4
n	1	4	7	8



Example 3: Use a Table of Values in Solving a Problem

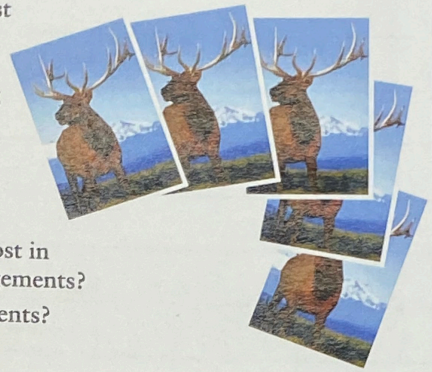
Photo World charges $3 for the first enlargement and $2 for each additional enlargement.

a) Make a table of values showing the cost in relation to the number of enlargements for one to five enlargements.

b) Is this a linear relation? Why?

c) What is an expression for the cost in relation to the number of enlargements?

d) What is the cost of 15 enlargements?



a)

Photos	Cost ($)
1	3
2	5
3	7
4	9
5	11

(+1, +1, +1, +1 on Photos; +2, +2, +2, +2 on Cost)

b) Yes it is linear, because change is consistent

c) $y = mx + b$ $\quad y = 2x + 1$

m = slope, $\frac{\Delta y}{\Delta x}$ $\quad \frac{2}{1} = 2$

d) $y = 2x + 1$

$y = 2(15) + 1$

$y = 30 + 1$

$y = \$31$