A **­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**is a letter that represents and unknown quantity.

<https://www.youtube.com/watch?v=Eu798Rf6P8k>

Math 8 – 9.2 Patterns in Tables of Values

For example, in 3a – 5, the variable is a.

It can be helpful to choose variables that are meaningful. For example, *t* for time and *s*  for score.

An **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** is any single number or variable, or a combination of operations ( +, −, ×, ÷) involving numbers and variables.

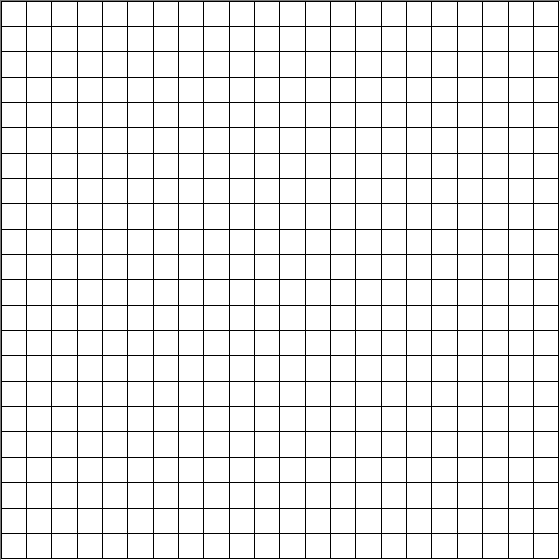
An expression **does not** include an equal sign.

The following are examples of expressions: 5 *r* 8*t x +* 9 2*y + 7*

**There are 5 ways to represent a linear relation**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mass (grams) | 0 | 100 | 200 | 300 |
| Cost (cents) | 0 | 200 | 400 | 600 |

1. **Table of values.**
2. **Words:**



1. **Ordered pair:**
2. **Expression**:
3. **Graph:**

|  |  |
| --- | --- |
| **A** | **B** |
| 0 | 0 |
| 1 | 3 |
| 2 | 6 |
| 3 | 9 |
| 4 | 12 |

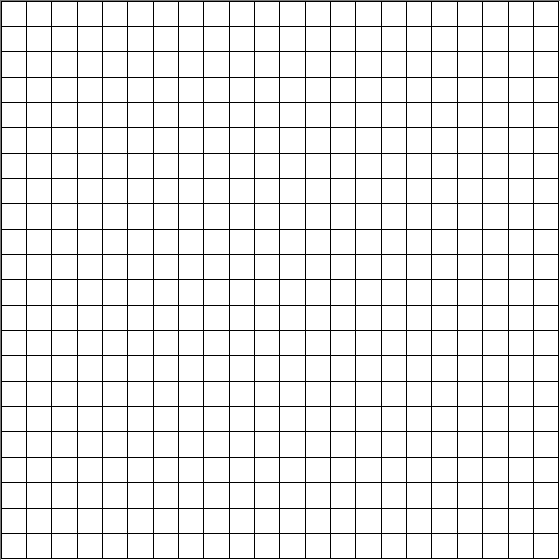
1. Graph the ordered pairs in the table of values:

What is the difference in value for consecutive A values?

For consecutive B values?

Describe in words the relationship between the values for A and B

What is an expression for B in terms of A?



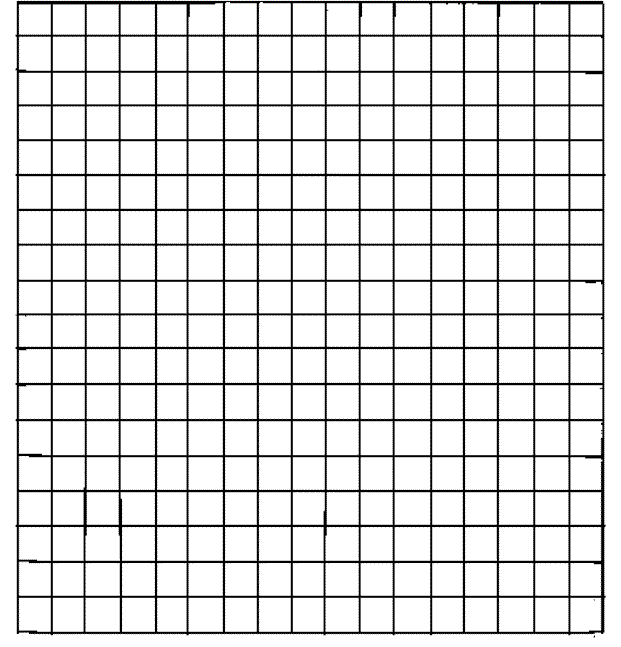
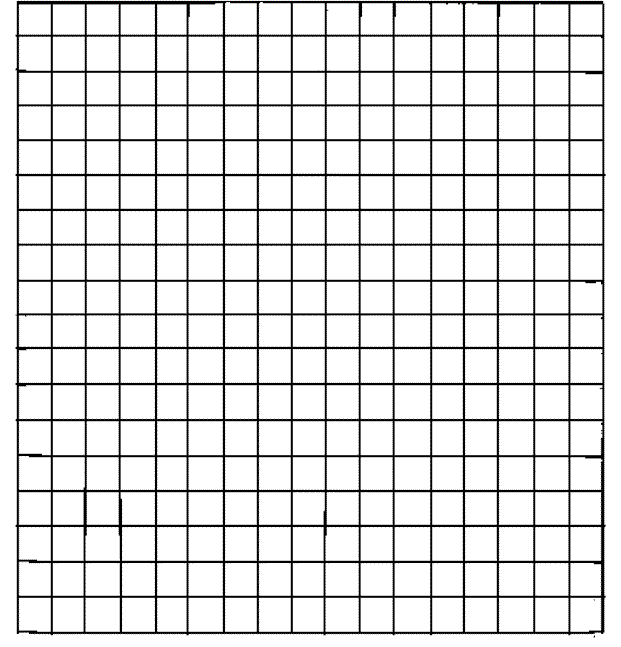
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Table 1 | | | | |
| X | 2 | 4 | 6 | 8 |
| Y | 3 | 7 | 11 | 15 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Table 2 | | | | |
| M | 1 | 2 | 3 | 4 |
| n | 1 | 4 | 7 | 8 |

2. 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)?

3. *Photo world charges $3 for the first enlargement on $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?