Name: _____ Period: _____ Date: _____

Patterns, Equations, and Graphs Guide Notes

SOLUTION OF AN EQUATION containing two variables, x and y, is any ordered pair (x, y) that makes the equation true.

ORDERED PAIR – is a set of numbers or coordinates written in the form (x, y). It can be used to show the position on a graph, where the x (horizontal) value is first, and the y (vertical) value is second.

Sample Problem 1: Tell whether the given order pair is a solution of each equation.

A. Is $(30, 3)$ a solution of the equation $x - 14 = 5y$?

B. Is $(12, 5)$ a solution of the equation $4x + 2 = 10y$?

C. Is $(7, 1)$ a solution of the equation $8x - 6 = 50y$?

There are various ways to show the relationship between two variables:

A. Create a **TABLE** to show the corresponding values of x and y,

Example: John is three years younger than his brother Matthew. Construct a table that represents their age.

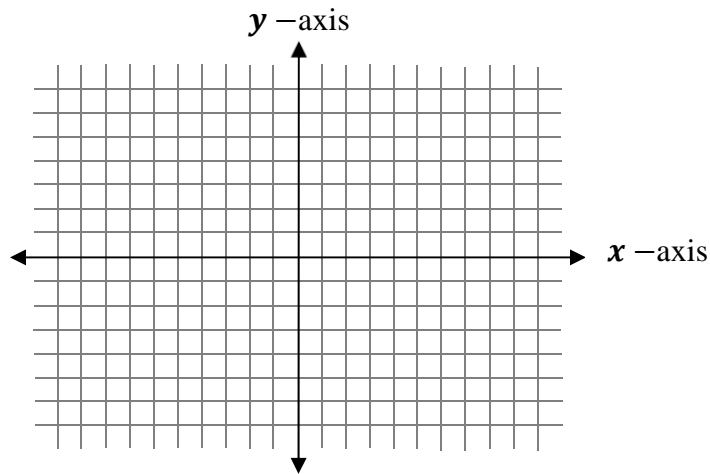| John	Matthew

B. Write an **EQUATION**, or.

Example: John is three years younger than his brother Matthew. Write an equation that represents their age.
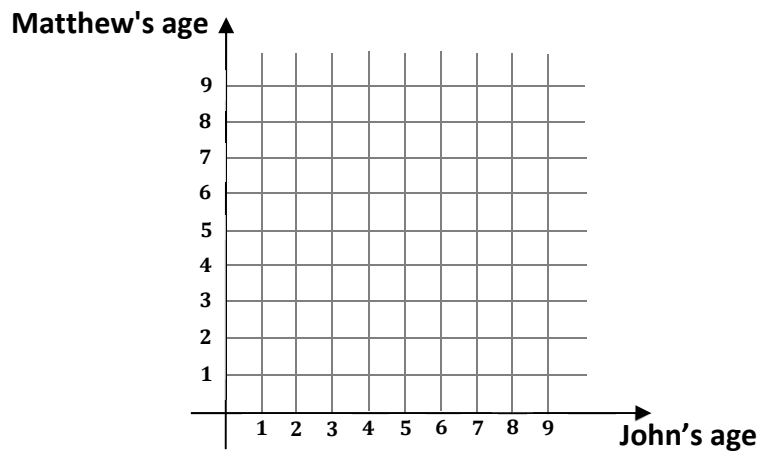
Let   : J=John's age M=Matthew's age

Patterns, Equations, and Graphs Guide Notes

C. Draw a **GRAPH**.

COORDINATE SYSTEM is a two-dimensional number line. This is a typical coordinate system: The horizontal axis is called the x −axis and the vertical axis is called the y −axis
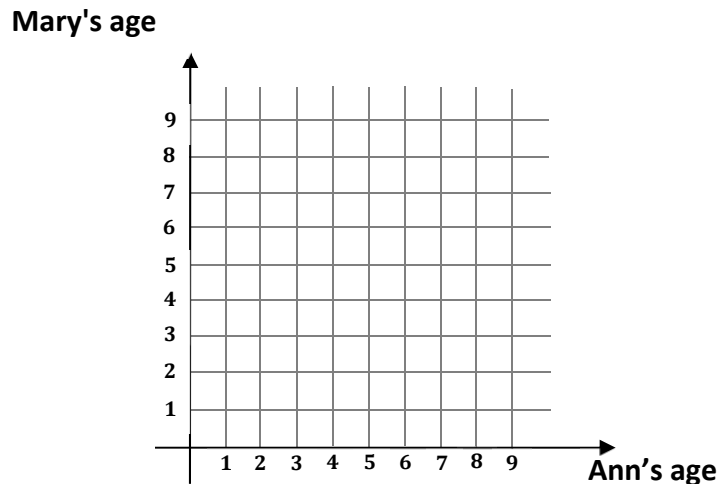
Example: John is three years younger than his brother Matthew. Draw a graph that represents their age.

Sample Problem 2: Use a table, an equation, and a graph to represent the relationship of Mary's and Ann's age.
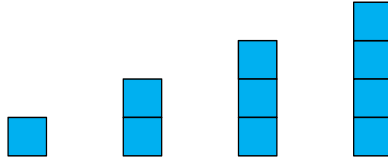
Mary is 2 years older than Ann.

Mary	Ann

Algebra1Coach.com

Patterns, Equations, and Graphs Guide Notes

INDUCTIVE REASONING is the process of reaching a conclusion based on an observed pattern. It is used to predict values.

Example 4: Predict the next figure in the given sequence.
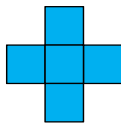
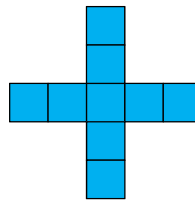**Sample Problem 3:** Predict the next figure in the each sequence.
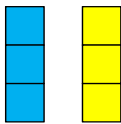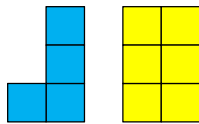
A.

    i.   ii.   iii.   iv.
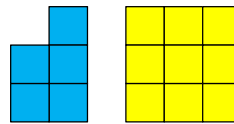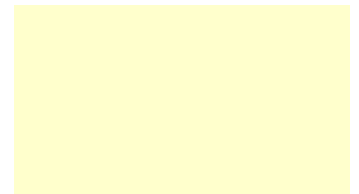
B.

    i.   ii.   iii.   iv.

C.

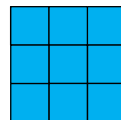   i.   ii.   iii.   iv.