

Objective: TSWBAT use tables, equations, and graphs to describe relationships

Vocabulary

① solution of equation with two variables - any ordered pair (x, y) that makes the equation true

Identifying Solutions of Two Variable Equations

IS $(3, 10)$ a solution of the equation $y = 4x$?

$$(10) = 4(3)$$

$$10 \neq 12 \quad \text{Not a solution}$$

Which of the following are solutions for $y = 4x$

a. $(5, 20)$ b. $(-5, -20)$ c. $(-20, -5)$ d. $(1.5, 6)$

$$20 = 4(5) \quad -20 = 4(-5) \quad -5 = 4(-20) \quad 6 = 4(1.5)$$

$$20 = 20$$

$$-20 = -20$$

$$-5 \neq -80$$

$$6 = 6$$

yes

yes

NO

yes

Using a Table, an Equation, and a Graph

Ages Both Carrie and her sister Kim were born on October 25, but Kim was born 2 years before Carrie. How can you represent the relationship between Carrie's age and Kim's age in different ways?

Make a Table

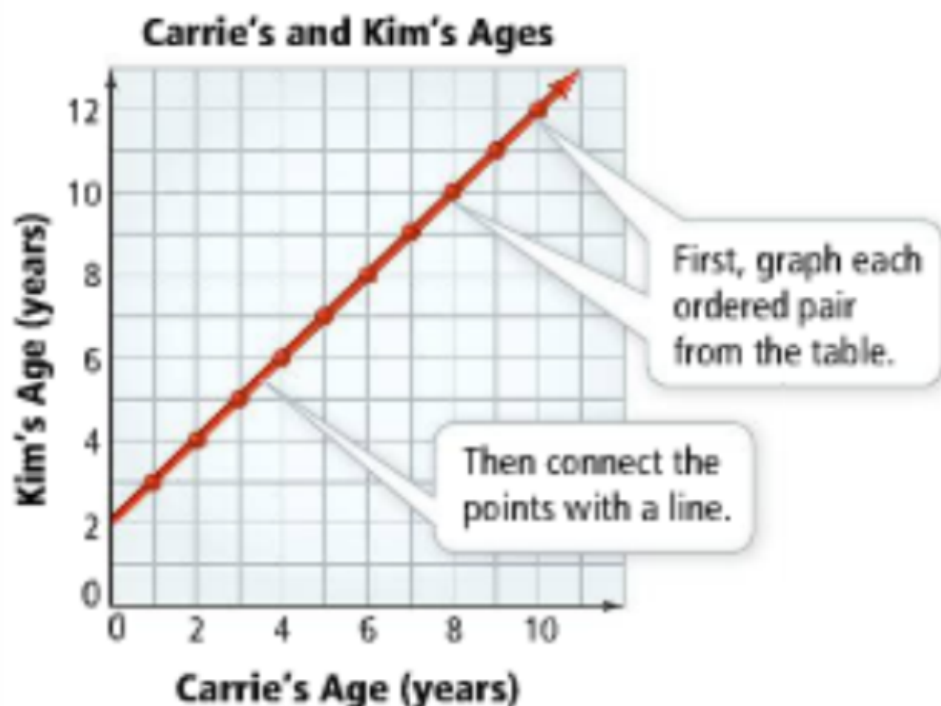
Carrie's and Kim's Ages (years)										
Carrie's Age	1	2	3	4	5	6	7	8	9	10
Kim's Age	3	4	5	6	7	8	9	10	11	12

Write an Equation

Let x = Carrie's age. Let y = Kim's age. From the table, you can see that y is always 2 greater than x .

So $y = x + 2$.

Draw a Graph



Will runs 6 laps before Megan joins him at the track. They then run together at the same pace. How can you represent the relationship between the number of laps Will runs and the number of laps Megan runs in different ways? Use a table, an equation, and a graph.

Reasoning Describe how the graph in Problem 2 above would change if the difference in ages were 5 years instead of 2 years.

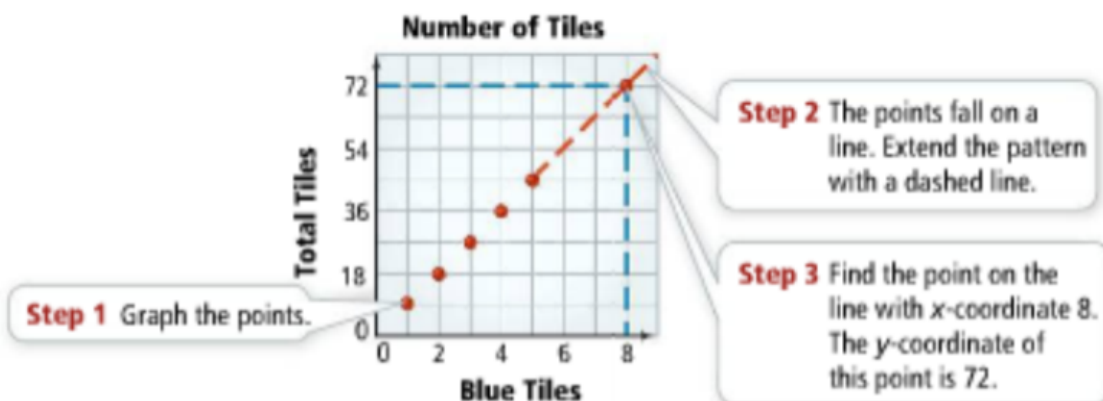
Extending A Pattern

The table shows the relationship between the number of blue tiles and the total number of tiles in each figure. Extend the pattern. What is the total number of tiles in a figure with 8 blue tiles?



Tiles	
Number of Blue Tiles, x	Total Number of Tiles, y
1	9
2	18
3	27
4	36
5	45

Method 1 Draw a graph.



Method 2 Write an equation.

$$y = 9x \quad \text{The total number of tiles is 9 times the number of blue tiles.}$$

$$= 9(8) \quad \text{Substitute 8 for } x.$$

$$= 72 \quad \text{Simplify.}$$

The total number of tiles is 72.