

Example 2

Kira designs websites. She can create three different websites each week. Kira wants to create an equation that will give her the total number of websites she can design given the number of weeks she works. Determine the independent and dependent variables. Create a table to show the number of websites she can design over the first 5 weeks. Finally, write an equation to represent the number of websites she can design when given any number of weeks.

Independent variable weeks

Dependent variable websites

Equation $3 \cdot w = b$

ind. dep.

ind.	dep.
weeks	websites
1	3
2	6
3	9
4	12
5	15

Example 3

Priya streams movies through a company that charges her a \$5 monthly fee plus \$1.50 per movie. Determine the independent and dependent variables, write an equation to model the situation, and create a table to show the total cost per month given that she might stream between 4 and 10 movies in a month.

Independent variable movies

Dependent variable cost

Equation $5 + 1.50 \cdot m = c$

ind. dep.

ind.	dep.
movies	cost
4	11.00
5	12.50
6	14.00
7	15.50
8	17.00
9	18.50
10	20.00

Exercises

1. Sarah is purchasing pencils to share. Each package has 12 pencils. The equation $n = 12p$, where n is the total number of pencils and p is the number of packages, can be used to determine the total number of pencils Sarah purchased. Determine which variable is dependent and which is independent. Then, make a table showing the number of pencils purchased for 3–7 packages.

ind. packages	dep. total
3	36
4	48
5	60
6	72
7	84

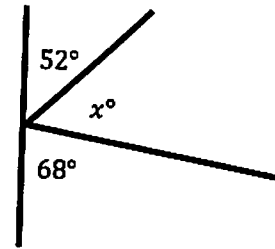
$n = 12p$
 | dep. | ind.

2. Charlotte reads 4 books each week. Let b be the number of books she reads each week, and let w be the number of weeks that she reads. Determine which variable is dependent and which is independent. Then, write an equation to model the situation, and make a table that shows the number of books read in under 6 weeks.

weeks	books
1	4
2	8
3	12
4	16
5	20
6	24

$4 \cdot w = b$
 | ind. | dep.

5. Aram has been studying the mathematics behind pinball machines. He made the following diagram of one of his observations. Determine the measure of the missing angle.



6. The measures of two angles have a sum of 90° . The measures of the angles are in a ratio of 2:1. Determine the measures of both angles.
7. The measures of two angles have a sum of 180° . The measures of the angles are in a ratio of 5:1. Determine the measures of both angles.

Lesson 31: Problems in Mathematical Terms

Classwork

Example 1

Marcus reads for 30 minutes each night. He wants to determine the total number of minutes he will read over the course of a month. He wrote the equation $t = 30d$ to represent the total amount of time that he has spent reading, where t represents the total number of minutes read and d represents the number of days that he read during the month. Determine which variable is independent and which is dependent. Then, create a table to show how many minutes he has read in the first seven days.

independent days	dependent answer minutes
1	30
2	60
3	90
4	120
5	150
6	180
7	210

Independent variable days

Dependent variable minutes

$t = 30d$

↑↑ answer dependent

↑ independent