

# [Example of essay on solving proportions](https://assignbuster.com/example-of-essay-on-solving-proportions/)

[Sociology](https://assignbuster.com/essay-subjects/sociology/), [Population](https://assignbuster.com/essay-subjects/sociology/population/)

- Problem #56
Bear population. To estimate the size of the bear population on the Keweenaw Peninsula, conservationists captured, tagged, and released 50 bears. One year later, a random sample of 100 bears included only 2 tagged bears. What is the conservationist's estimate of the size of the bear population?

## Solution

Assume that x is a number in the population. We know, that 100 bears included 2 tagged bears. Then, we can construct the proportion:
Released populationsample caught= Real populationsample caught

## Now we substitute the given values:

502= x100

## And complete cross multiply:

25= x100
x= 25∙100= 2500
50 bears represent 2% of the total population. We can make a conclusion, that the total bear population can be estimated in 2500 bears.
- Problem #10

## Simple equations involving X & Y.

y-1x+3=-34
Solution
Here we also must use the proportion method. It can be considered as an extraneous proportion. Use cross multiplying:
4y-1=-3x+3

## Simplifying:

4y-4=-3x-9

## Add 4 to both sides:

4y=-3x-5

## And dividing on 4:

y=-34x-54

## The form of the equation we obtained is the linear equation. Its general for is below:

y= kx+b

## The coefficient near x is the slope of the line. In our case,

k=-34
Actually, there is another way to solve this problem. First, we can multiply both sides on (x+3).
y-1=-3(x+3)4

## Then, add 1 to both sides:

y=-3x+34+1

## And we obtained the equation, solved by y. We have only to simplify the expression in the right side:

y=-34x-94+1=-34x-54
As we may see, we obtained exactly the same answer. That’s why both ways of solution are appropriate.

## Sources

- All about proportions. http://en. wikipedia. org/wiki/Proportionality\_(mathematics)