Example of essay on solving proportions

Sociology, Population

ASSIGN BUSTER

- 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)