

6.4 Sampling and Population

Estimation of population based on amount in sample

Capture - Recapture
 Capture and 50 deer release back in pop
 Recapture 100 deer 12 were tagged
 Sample

$$\frac{12}{100} = \frac{50}{x} \leftarrow \text{total population estimate}$$

$$\frac{5000}{12} = \frac{12x}{12} \quad x \approx 416$$

Surveys

Asked 50 people
 23 said they prefer Science over English

How many people in a school of 900 would prefer science

$$\frac{23}{50} = \frac{x}{900} \quad x = 414$$

$$20700 = 50x$$

Sample - Population Equation

$$\frac{\text{favorable in sample}}{\text{total in sample}} = \frac{\text{favorable in population}}{\text{total in population}}$$

Margin of Error

$\pm 3\%$

45% Approval rating for Trump

42 \rightarrow 48

Population of Argyle

is 680 \pm 20