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| NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_ | **Statistics** |
| Sampling – Lots of practice | **DATE: Tuesday, April 04, 2017** |

In reverse, if you are looking for how many people to sample. 

Where:

* **E** is the margin of error. It’s the plus-or-minus figure you see in newspapers to give yourself some room where the exact answer is. (So if we want to be within 5% of the correct answer, E is .05)
* **Z** again will be 2 if we want to be 95%
* **P is the percent of people that you believe (based on earlier surveys) support one side. If you don’t know p, put in .5**

**Example 1:**

For a final project you are going to survey high school students in Portland and find out if they have smoked (cigarettes) in last month. The state of Maine recently reported that 15% of teenagers in their survey reported they had smoke in last month. How many people should you survey if you want to be 95% confident that you are within 4% of the correct value.



**Example 2:**

We want to know what percent of people would vote for Bilal for Mayor of Portland. How many people do you need to survey so that you are 95% confident that we are within 5% of the correct answer.

*Note: Because we don’t know p, we will use .5*



Practice:

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| --- | --- |
| We believe around 40% of people in Maine support Trump. We want to be 95% confident that we are within 2% of the actual result. How many people should we survey? | We believe around 40% of people in Maine support Trump. We want to be 95% confident that we are within 5% of the actual result; our population is really large. How many people should we survey? |

HW 12:

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| We want to survey people in Portand,ME and find what percent like Trump. We want to be 95% accurate and be within 4%. How many people should we survey? (Use .5 for p) | We asked people in Portland if they should renovate the elementary schools. Our survey was 2000 people and 42% said yes. We want to be 95% sure of what the entire city thinks – create a window below. |
| We want to know if people are worried about global warming. We asked 200 randomly chosen people around the country and 65% said yes. We want to be 95% sure of what the entire country thinks: What is our margin of error? Use that to create our confidence interval for what all people think? | Keivah wants to know if people at Deering like Deqa. She asked 65 random people, surprisingly 83% said yes, the like her. Create a 95% confidence interval for the true proportion of people that like her. |
| We want to know if people are worried about global warming. In past surveys 65% said yes. How many people should we ask so we are 95% confident that we are within 3 % of the correct answer? | We want to know if people are worried about global warming. In past surveys 65% said yes. How many people should we ask so we are 95% confident that we are within 6 % of the correct answer? |
| A large survey was done to see if people like the new Dominos pizza. Of 10,000 randomly selected people, only 22% said they like it, create a 95% confidence interval for the true proportion of all people that like Dominos? | A small survey was done to see if people like the new Dominos pizza. Of 40 randomly selected people, only 22% said they like it, create a 95% confidence interval for the true proportion of all people that like Dominos? |
| ADVANCED: We asked people in Portland if they should renovate the elementary schools. We want to be 98% sure of what the entire city thinks give or take 3%. – How many people should we ask? | ADVANCED: We want to survey people in Portand,ME and find what percent like Trump. We want to be 99% accurate and be within 4%. How many people should we survey? (Use .5 for p) |
| ADVANCED: We asked people in Portland if they should renovate the elementary schools. Our survey was 2000 people and 42% said yes. We want to be 90% sure of what the entire city thinks – create a window below. | ADVANCED: We asked people in Portland if they should renovate the elementary schools. Our survey was 2000 people and 42% said yes. We want to be 99% sure of what the entire city thinks – create a window below. |