A5: Part B

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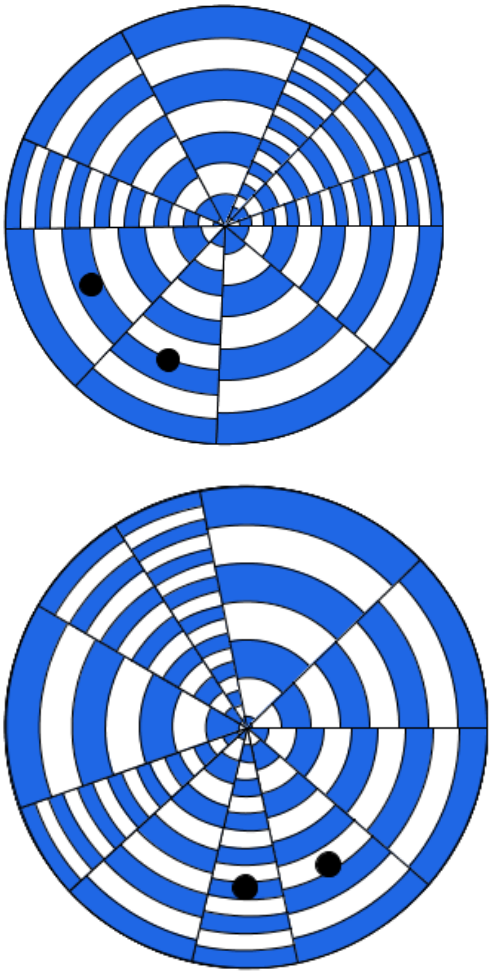
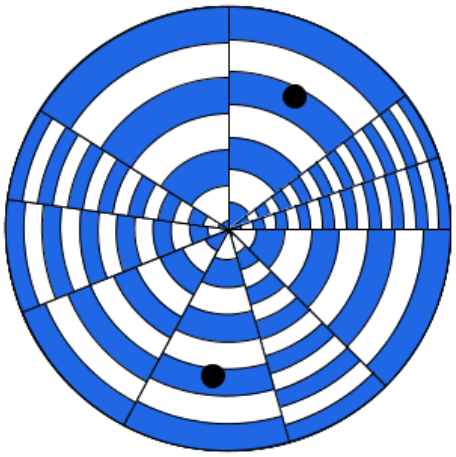
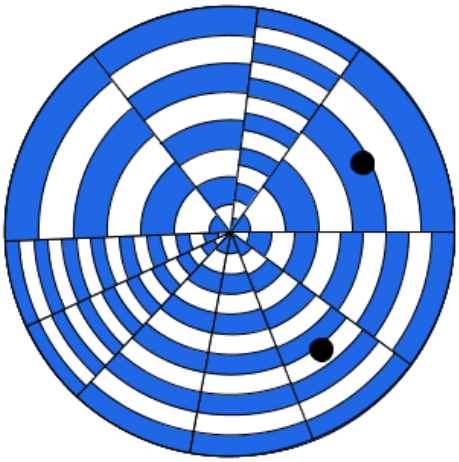
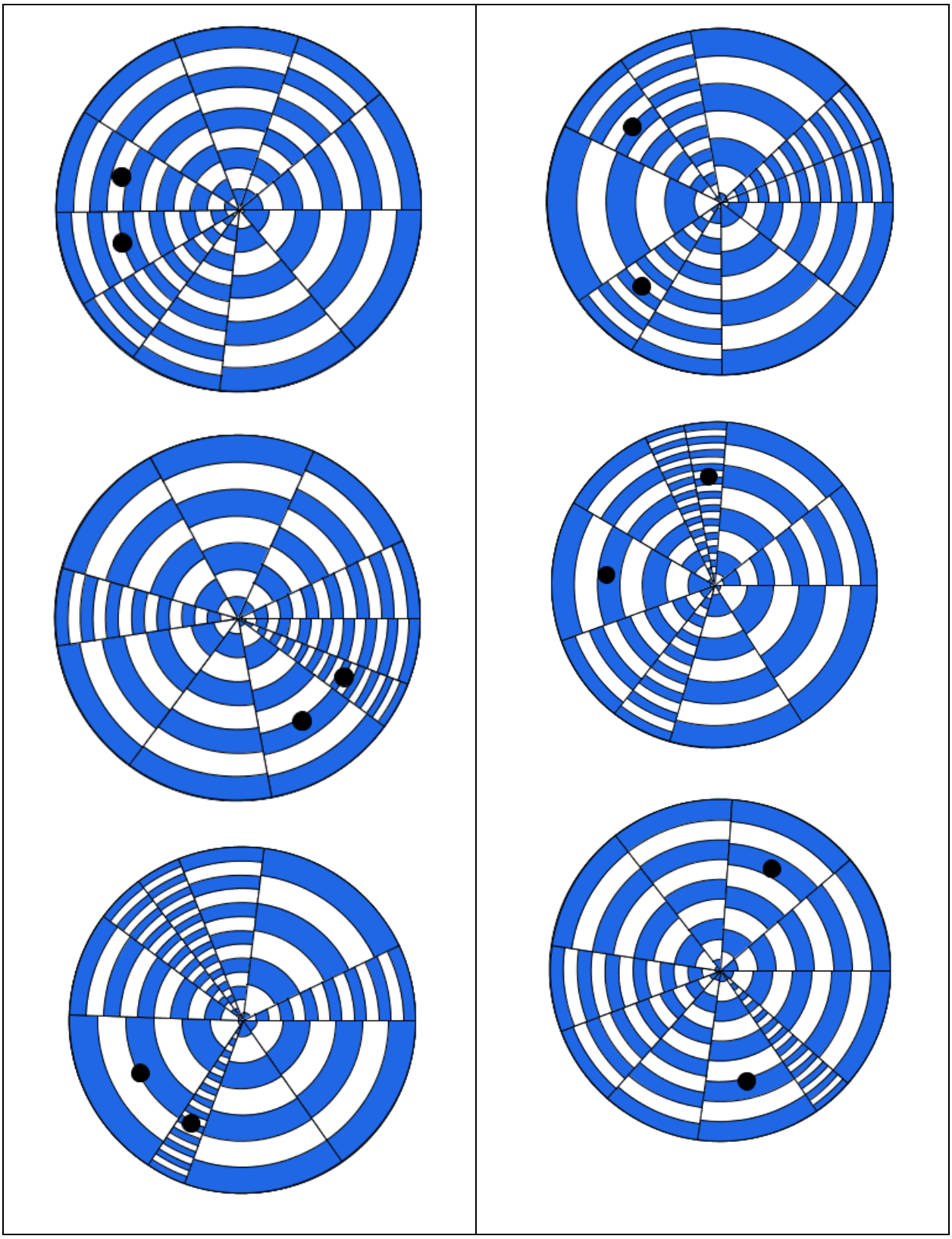
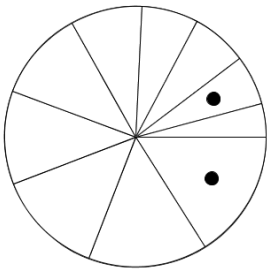
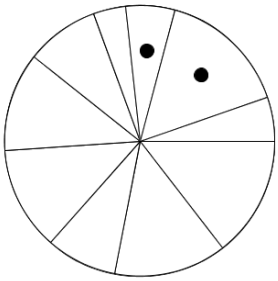
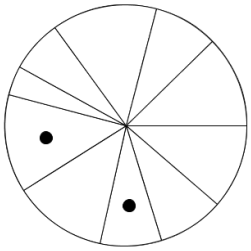
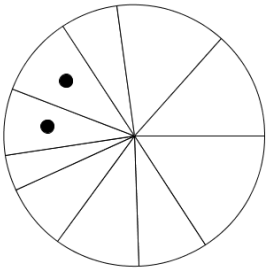
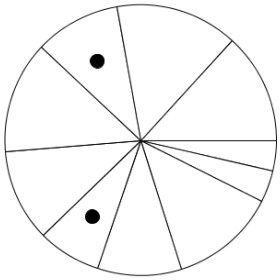
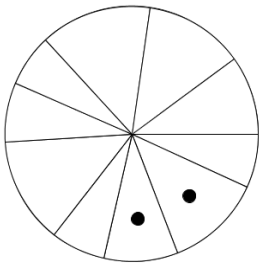
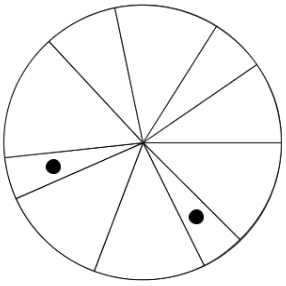
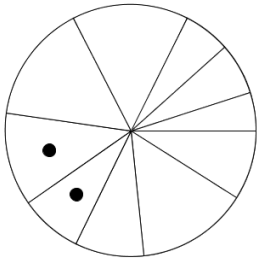
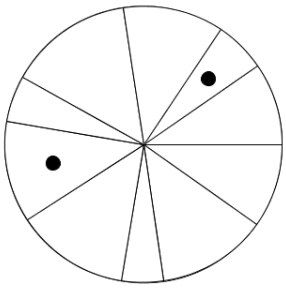
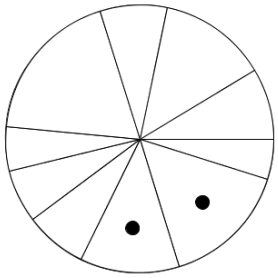
Visualizations To Test:

1. “PieContigStripe” : Pie Chart with marked values appearing in contiguous wedges, and all wedges are striped.
2. “PieUncontigStripe” : Pie Chart with marked values NOT appearing in contiguous wedges, and all wedges are striped.
3. “PieUncontig” :Pie Chart with marked values NOT appearing in contiguous wedges
4. “PieContig” : Pie Chart with marked values appearing in contiguous wedges

PieContigStripe	PieUncontigStripe
	 



PieUncontig	PieContig
	
	
	
	
	

A Note regarding the stripes:
A wedge is filled with stripes, each stripe in the wedge is the same height as the other stripes within the same wedge. The height of the stripes in a particular wedge corresponds to the arc length of the wedge; the larger the arc length, the larger the stripe height of the according wedge.

Hypothesis:

- It will be the least challenging to provide an accurate estimate when the two marked wedges appear next to each other, and are striped. We feel that this will be true because the individual can count the number of stripes appearing in a wedge and subsequently estimate the percentage difference more easily.
- It will be the 2nd least challenging to provide an accurate estimate when the two marked wedges appear not next to each other, and are striped.
- It will be less challenging to provide an accurate estimate when the wedges are contiguous, as opposed to when the wedges are not contiguous. (Wedges without stripes on them will be more difficult to estimate for than wedges with stripes.)

Hypothesis of Ranking	
Rank	Visualization
1	PieContigStripe
2	PieUncontigStripe
3	PieContig
4	PieUncontig

Results:

- We are aware that results between using the T-distribution and the Regular method aren't all that different in practice for calculating the confidence interval. And so, we have chosen to use the Regular method. (We are however aware that using the T-distribution method could have been appropriate because we only have the sample standard deviation, and not the population standard deviation.)

Average By Visualization		
Visualization	Average of Errors	# of tests Completed
PieContigStripe	1.594970299	38
PieUncontigStripe	2.049045008	37
PieContig	2.688700127	38
PieUncontig	3.032187132	37

Regular Method Calculations					
Visualization	Average of Errors	Standard Deviation	Number of Tests	left	right
PieContigStripe	1.594970299	1.701228271	38	1.05406792	2.13587286
PieUncontigStripe	2.049045008	1.10530988	37	1.69289637	2.40519364
PieContig	2.688700127	1.43519617	38	2.232384	3.145016
PieUncontig	3.032187132	1.299866815	37	2.61334912	3.45102515

- The following diagram demonstrates the confidence intervals for the tests. This diagram shows us that the wider confidence intervals exist for both of the pie chart

tests in which dots are contiguous, and the narrower confidence intervals exist for the pie chart tests in which the dots are not contiguous. The two cases with the wider confidence intervals are the ones for which the estimates may be less stable; although the average error was lower in these two cases, there was less stability in these estimates. While the PieContigStripe test yielded the lowest error, it had the least stability of all of the tests.