

Part 5.1 Answers

1. **Margin of Error:** $\frac{1}{\sqrt{n}} = \frac{1}{\sqrt{1000}} = 0.0316$ (3sf) = 3.16%

Construct the confidence interval: $65\% \pm 3.16\% = (61.8\%, 68.2\%)$

Interpret what this Means: We can say, with 95% confidence, that the percentage of kiwi school students who bring their own device to school is somewhere between **61.8%** and **68.2%**

Make a Judgement: The percentage of kiwi school students who bring their own device to school could be as low as **61.8%** and so this confidence interval **does** support a claim of over 50% as implied by the "majority" statement.

2. **Margin of Error:** $\frac{1}{\sqrt{n}} = \frac{1}{\sqrt{300}} = 0.0577$ (3sf) = 5.77%

Construct the confidence interval: $54\% \pm 5.77\% = (48.2\%, 59.8\%)$

Interpret what this Means: It is a fairly safe bet that the percentage of people who support the new law is somewhere between **48.2%** and **59.8%**.

Make a Judgement: The percentage of that the percentage of people who support the new law could be as low as 48.2% and so this confidence interval does support a claim of over 50% as implied by the "over half" statement.

3. **Margin of Error:** $\frac{1}{\sqrt{n}} = \frac{1}{\sqrt{100}} = 0.1 = 10\%$

Construct the confidence interval: $36\% \pm 10\% = (26\%, 46\%)$

Interpret what this Means: I am fairly sure that the percentage of **New Zealanders that have an iPhone** is somewhere between **26%** and **46%**.

Make a Judgement: The percentage of **New Zealanders who own an iPhone** could be as **high** as **46%** and so this confidence interval **does** support a claim of **under** 50% as implied by the "**less than half**" statement.

4. **Margin of Error:** $\frac{1}{\sqrt{n}} = \frac{1}{\sqrt{1000}} = 0.0316$ (3sf) = 3.16%

Construct the confidence interval: $51\% \pm 3.16\% = (47.8\%, 54.2\%)$

Interpret what this Means: We can say, with 95% confidence, that the percentage of **kiwi school students who have a Facebook account** is somewhere between **47.8%** and **54.2%**.

Make a Judgement: The percentage of **kiwi school students who have a Facebook account** could be as **low** as **47.8%**, and so this confidence interval **doesn't** support a claim of **over** 50% as implied by the "**majority**" statement.