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% ± 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% ± 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 not** 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% ± 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% ± 3.16% = (48.8%, 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.