Practice worksheet | Sampling and confidence intervals

Effect of sample size and variability

Name: _____ Date: _____

6 questions | 13 marks

1. Margin is 5 at n = 36. Find it at n = 144. [2 marks]

2. A sample of 80 has a given margin. How many observations give one-third that margin? [2 marks]

3. SD changes from 8 to 12 with confidence and n fixed. Compare widths. [2 marks]

4. Compare 99% and 95% widths using critical values 2.576 and 1.96. [2 marks]

5. Both n and population SD are multiplied by four. Compare margins. [2 marks]

6. Use the supplied repeated-interval simulation table. Compare interval width when n rises from 25 to 100 at fixed confidence. Does the observed capture fraction have to equal the advertised confidence exactly? [3 marks]

One simulation: 2,000 sample intervals per row; normal population mean 100, SD 20

Sample size	Confidence	Captures	Capture fraction	Mean width
25	95%	1903	0.9515	15.680
25	99%	1978	0.9890	20.608
100	95%	1902	0.9510	7.840
100	99%	1988	0.9940	10.304