

Example 1: Which confidence interval is the shortest?  
Which confidence interval is the longest?

- 90% confidence interval longest
- 95% confidence interval
- 80% confidence interval
- 6% confidence interval shortest

Smallest number  $\rightarrow$  shortest C.I. largest number  $\rightarrow$  longest C.I.

Example 2: Which of the following yields an approximate 90% confidence interval?

- The mean  $\pm$  2 Standard errors.
- The mean  $\pm$  1.65 Standard errors. ✓
- The mean  $\pm$  1.5 Standard errors.
- 1.5 standard errors  $\pm$  the mean.

go to the z  
table, find the  
number with area  
approximately equal  
to 90

Example 3: A city have a population of 1 million, of whom 500,000 are female. A random sample of size 100 people is drawn from the city. True/False for the following statements.

- 500,000 women are expected in the city. True
- 500,000 women are expected in the sample. False
- 50 women are expected in the city False
- 50 women are expected in the sample. True
- The exact proportion of women in the city is 50% True
- The expected proportion of women in the sample is 50% True
- The exact proportion of women in the sample is 50%. False

Example 4: A fair coin is rolled 100 times. What is the standard error for the proportion of times a head is obtained over the 100 rolls?

- 5% ✓

Box 0, 1 draw: 100

- 10%

$$\text{SE of draw: } \sqrt{100} \times \sqrt{\frac{(0.5)^2 + (1-0.5)^2}{2}} = 5$$

- 25%

$$\text{SE for percentage: } 5/100 \times 100\% = 5\%$$

- 50%

Example 5: A fair six sided dice is rolled 100 times, and the number on the face is recorded.

Which of the following events has the largest probability to happen? Which has the smallest?

- <sup>1</sup> The proportion of even number is between 45% to 55% ✓
- <sup>2</sup> There are exactly 50 times you get even number.
- <sup>3</sup> There are between 49 and 51 times, inclusively, you get odd number.
- <sup>4</sup> The proportion of odd number is 50%.

