



Expected Values and Standard Errors for Sums

1. Fill in the blanks. Compute the z -scores for the range then use the normal curve to compute the probability of getting a sample sum in that range.

Box	mean_{box}	SD_{box}	n	EV_{sum}	SE_{sum}	range	probability
<div><div>4</div><div>6</div></div>	5	1	16	80	4	76 to 84	68%
<div><div>4</div><div>6</div></div>			16			80 to 88	
<div><div>4</div><div>6</div></div>			16			over 84	
<div><div>4</div><div>6</div></div>			100			490 to 510	
<div><div>4</div><div>6</div></div>			100			485 to 515	
<div><div>4</div><div>6</div></div>			100			over 520	
<div><div>1</div><div>9</div></div>			25			105 to 145	
<div><div>1</div><div>9</div></div>			25			95 to 155	
<div><div>1</div><div>9</div></div>			25			under 125	
<div><div>0</div><div>1</div></div>			144			66 to 78	
<div><div>0</div><div>1</div></div>			144			60 to 78	
<div><div>0</div><div>1</div></div>			10,000			4950 to 5050	
<div><div>0</div><div>1</div><div>2</div></div>			100			92 to 108	

$$\text{EV}_{\text{sum}} = n \times \text{AV}_{\text{box}}$$

$$\text{SE}_{\text{sum}} = \sqrt{n} \times \text{SD}_{\text{box}}$$



Expected Values and Standard Errors for Percentages

1. Fill in the blanks. Since the boxes contain only zeros and ones, the $100\% \times$ (the average of a sample) is the percentage of ones in the sample. Compute the z -scores for the range then use the normal curve to compute the probability of getting a sample percentage in that range.

Box	mean _{box}	SD _{box}	n	EV _%	SE _%	range	probability
5 <input type="text"/> 0 s 5 <input type="text"/> 1 s	0.5	0.5	16	50%	12.5%	37.5% to 62.5%	68%
5 <input type="text"/> 0 s 5 <input type="text"/> 1 s			16			25.0% to 75.0%	
5 <input type="text"/> 0 s 5 <input type="text"/> 1 s			16			45.0% to 55.0%	
5 <input type="text"/> 0 s 5 <input type="text"/> 1 s			100			37.5% to 62.5%	
5 <input type="text"/> 0 s 5 <input type="text"/> 1 s			100			25.0% to 75.0%	
5 <input type="text"/> 0 s 5 <input type="text"/> 1 s			100			45.0% to 55.0%	
65 <input type="text"/> 0 s 35 <input type="text"/> 1 s			100			30.0% to 40.0%	
65 <input type="text"/> 0 s 35 <input type="text"/> 1 s			1,000			30.0% to 40.0%	
65 <input type="text"/> 0 s 35 <input type="text"/> 1 s			10,000			30.0% to 40.0%	
3,581 <input type="text"/> 0 s 3,091 <input type="text"/> 1 s			25			41.0% to 51%	
3,581 <input type="text"/> 0 s 3,091 <input type="text"/> 1 s			100			41.0% to 51%	
3,581 <input type="text"/> 0 s 3,091 <input type="text"/> 1 s			1,000			41.0% to 51%	
3,581 <input type="text"/> 0 s 3,091 <input type="text"/> 1 s			1,000			45.0% to 47%	

$$EV_{av} = AV_{box} \quad SE_{av} = SD_{box} / \sqrt{n}$$