Step 1

\[ \text{box avg} = \frac{1}{6} \times 1 + \frac{5}{6} \times 0 = \frac{1}{6} \]

\[ \text{box } \sigma = (1-0) \times \sqrt{\frac{1}{6} \times \frac{5}{6}} = 0.373 \]

**Step 2**

\[ \text{EV (sum)} = 1000 \times \frac{1}{6} = 166.7 \]

\[ \therefore \text{SE (sum)} = \sqrt{1000} \times 0.373 = 11.765 \]

\[ \text{EV (percentage)} = \frac{166.7}{1000} = 16.67\% \]

\[ \text{SE (percentage)} = \frac{11.765}{1000} = 1.1767\% \]

Therefore, percentage of exactly \( 16.67\% \), give or take \( 1.1767\% \) or so.

(a) First step, (cii) set up box model.

(b) Solving problem as above.

**Step 1**

\[ \text{box avg} = \frac{1}{3} \times 1 + \frac{1}{3} \times 0 = \frac{1}{3} \]

\[ \text{box } \sigma = (1-0) \times \sqrt{\frac{1}{3} \times \frac{2}{3}} = 0.471 \]

**Step 2**

\[ \text{EV (sum)} = \frac{1}{3} \times 600 = 200 \]

\[ \text{SE (sum)} = 0.471 \times \sqrt{600} = 11.547 \]

The number of 1s among the draws will be around \( 200 \), give or take \( 11.547 \) or so.
(a) observed 35\%, expected 34\%
(b) observed 31.4\%, expected 68.6\%

Chap 2

1. of the Mayor is like the sum of

2. made at random without replacement from a

3. with a ticket for each voter in town; the ticket marked "1" if oppose, marked "2" if n.w.

4. this is not the right SE. We do not have a simple random sample of 282 days, and the daily changes are dependent; each day's closing price is the next day's opening price.

5. this is not the right SE. The bank has mixed up 23 c. with 23\%.
chap 23

#1

**Step 1**

box avg = 100
box s.d = 20
h = 400

(a) **Step 2**

\[
\text{EV (avg)} = 100 = 100
\]

\[
\text{SE (avg)} = \frac{20}{\sqrt{400}} = 1
\]

(b) **Step 3**

\[
\approx 100\%
\]

#2

box avg \[\boxed{\phantom{\text{}}} \] \[\text{71.3}\]
box s.d = 2.3
h = 500

(a) **true**

\[
\text{SE (average)} = \frac{2.3}{\sqrt{500}} = 0.1028
\]

use sample average to estimate box average

\[\sqrt{\text{true}}\]

(b) **true** /68% confidence interval \[71.3 \pm 1\] \[\sqrt{\text{true}}\]

(c) false \[P \text{ is a hook}\]
sample average $= 2.30 \rightarrow$ estimate population average

(a) true $\checkmark$

(b) false $\times$ you already know sample average, it's the population average that you need to worry about

(c) true $\checkmark$ $2.30 \pm 2 \times 0.17 = 2.16 \sim 2.44$ true $\checkmark$

(d) $\times$ false household size not follow normal

(e) $\times$ false

(f) true $\checkmark$

Chap 26

#1

(a) true $\checkmark$ see p500 $p$ value = observed significance (eval

(b) false $\times$ due to difference real

#2

(a) null: fraction of 1's in box is $\frac{18}{38}$ (8)

alternative: fraction of 1's in box is $\frac{15}{38}$ $Z = \frac{1890 - 18}{38} = 0.81\%$

(b) null $18/38 = 47.368\%$

alternative $747.368\%$

median increase

null: did not go up

alternative: went up 5%, 50%

(b) $\boxed{10}$ null

| box avg = 0.5 |
| box sd = (1-0) $\sqrt{\frac{\sigma^2}{n}}$ = $\frac{1}{2}$ |
| $E(U) = \frac{0.5 \times 250}{750} = 50\%$ |
| $SE(U) = \frac{1}{2} \times \frac{\sqrt{350}}{750} = 1.83\%$ |

(d) there are too many reds

#11

(a) alternative went up 5%, 50%

(b) $\boxed{10}$ null

$z = \frac{56\% - 50\%}{1.83\%} = 3.3$

P is very small

(c) the median increase has gone up