

Show all work to receive full credit. Supply explanations when necessary.

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1. (3 points) Page 562, Problem Section 9-3, #3

Put twelve small pieces of paper, each one with the name of a month written on it, into a box. Select five pieces of paper, at random, with replacement. A successful trial will be one in which at least two of the same months are selected. (Instead of months, I used the whole numbers 1-12.)

See attached sheet.

$$\text{My probability estimate is } \frac{\# \text{ of successes}}{10} = \frac{5}{10}$$

2. (1 point) Page 651, Problem Section 10-3A, #4

$$\text{New mean} = \frac{28 \times 80 + 60 + 50}{30} = 78.\bar{3}$$



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### Research Randomizer Results

10 Sets of 5 Non-unique Numbers Per Set  
Range: From 1 to 12 -- Unsorted

Job Status: Finished

**Set #1:**

3, 12, 12, 10, 6      Success

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**Set #2:**

12, 11, 3, 11, 6      Success

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**Set #3:**

11, 4, 12, 2, 3      Failure

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**Set #4:**

2, 3, 5, 9, 6      Failure

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**Set #5:**

6, 5, 7, 8, 9      Failure

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**Set #6:**

1, 9, 4, 1, 9      Success

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**Set #7:**

4, 3, 9, 10, 4      Success

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**Set #8:**

5, 5, 5, 9, 3      Success

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**Set #9:**

10, 7, 11, 6, 12      Failure

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**Set #10:**

4, 10, 8, 5, 12      Failure

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3. (1 point) Page 651, Problem Section 10-3A, #10

$$\bar{X} = \frac{2 \times 18 + 4 \times 22 + 4 \times 26 + 3 \times 35 + 12 \times 38 + 8 \times 44 + 4 \times 50 + 2 \times 80 + 150}{40}$$

IN  
THOUSANDS

$$= 41.275 \Rightarrow \text{MEAN IS } \$41,275.$$

$$\text{MEDIAN} = \frac{38000 + 38000}{2} = \$38,000$$

$$\text{MODE} = \$38,000$$

4. (2 points extra credit) Research the "Monte Hall Problem." Then design and use a simulation to approximate the probability of winning if you switch doors and if you don't switch doors.