

- 1) One hundred draws will be made at random with replacement from the box 

1	1	2	2	2	4
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- The smallest the sum can be is \_\_\_\_\_, the largest is \_\_\_\_\_.
  - The sum of the draws will be around \_\_\_\_\_, give or take \_\_\_\_\_ or so.
  - The chance that the sum will be bigger than 250 is almost \_\_\_\_\_%.
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- 2) One hundred draws will be made at random with replacement from the box 

1	3	3	9
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- How large can the sum be? How small?
  - How likely is the sum to be in the range from 370 to 430?
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- 3) One hundred draws are going to be made at random with replacement from the box 

0	2	3	4	6
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. True or false and explain.
- The expected value for the sum of the draws is 300.
  - The expected value for the sum of the draws is 300, give or take 20 or so.
  - The sum of the draws will be 300.
  - The sum of the draws will be around 300, give or take 20 or so.
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- 4) A fair die is rolled 60 times.
- The number of spots should be around \_\_\_\_\_, give or take \_\_\_\_\_ or so.
  - The number of 6's should be around \_\_\_\_\_, give or take \_\_\_\_\_ or so.
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- 5) A coin is tossed 16 times.
- The number of heads is like the sum of 16 draws made at random with replacement from one of the following boxes. Which one and why?  
 (i) 

head	tail
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    (ii) 

0	1
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    (iii) 

0	1	1
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  - The number of heads will be around \_\_\_\_\_, give or take \_\_\_\_\_ or so.
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- 6) One hundred draws are made at random with replacement from 

1	2	3	4	5
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. What is the chance of getting between 8 and 32 tickets marked "5"?

- 7) According to the simplest genetic model, the sex of a child is determined at random, as if by drawing a ticket at random from the box



What is the chance that of the next 2,500 births (not counting twins or other multiple births), more than 1,275 will be females?

- 8) A letter is drawn 1,000 times, at random, from the word A R A B I A. There are two offers.
- (A) You win a dollar if the number of A's among the draws is 10 or more above the expected number.
  - (B) You win a dollar if the number of B's among the draws is 10 or more above the expected number.

Choose one option and explain.

- (i) A gives a better chance of winning than B.
- (ii) A and B give the same chance of winning.
- (iii) B gives better chance of winning than A.
- (iv) There is not enough information to decide.