Due before tutorial, monday December 10th.
If any calculations are required to obtain your answers, please show them.

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1. Two unbiased coins are tossed.

   (a) **[2 pts.]** Write down the set of possible outcomes, i.e., the sample space.

   (b) **[4 pts.]** Find the probability of obtaining exactly one tail.

   (c) **[4 pts.]** Find the probability of obtaining at least one tail.

2. Three unbiased coins are tossed.

   (a) **[3 pts.]** Write down the sample space, i.e., set of possible outcomes.

   (b) **[4 pts.]** Find the probability of obtaining exactly one tail.

   (c) **[SELF]** Find the probability of obtaining at least one tail.

3. Two unbiased six-faced dice are thrown.

   (a) **[3 pts.]** Calculate the probability that the sum of the two results will be 2.

   (b) **[4 pts.]** Calculate the probability that the sum of the two results will be 7.

   (c) **[SELF]** Calculate the probability that the first die shows 4.

4. Here is a group of 5 numbers:

   15.2 11.8 17.4 13.3 19.1

   (a) **[SELF]** Calculate the average.

   (b) **[4 pts.]** Calculate the variance and the standard deviation.

5. **[3 pts.]** The following two groups of numbers have the same mean but different standard deviation. Without calculating, identify which group has larger standard deviation, and explain your reasoning.

Group M:	35.0	5.0	14.8	11.2	28.8	25.2
Group N:	20.5	19.2	20.8	19.8	20.2	19.5

6. You are given 6 juggling balls of different colour.

   (a) **[3 pts.]** In how many distinct ways could you arrange the 6 balls in a row?

   (b) **[5 pts.]** In how many ways could you choose four balls out of the six, without caring about the ordering?

7. A jar contains 3 red marbles, 7 green marbles and 10 white marbles.

   (a) **[2 pts.]** If a marble is drawn from the jar at random, what is the probability that this marble is white?

   (b) **[9 pts.]** If two marbles are drawn from the jar at random, what is the probability that both are white?