

# Five dice game I

This task is about predicting and calculating combinations.

## Practical Task



Example

2

3

1

3

4

One pair (of 3's)

When five dice are thrown these are the **seven** different types of number combinations they can have on them:

Combination	Example
1. All dice different	1, 2, 4, 5, 6
2. One pair	1, 2, 3, 3, 4
3. Two pairs	2, 2, 5, 5, 6
4. One triple	1, 4, 4, 4, 5
5. One triple + one pair	2, 2, 3, 3, 3
6. Four dice the same	3, 6, 6, 6, 6
7. Five dice the same	4, 4, 4, 4, 4

a) Using the combinations listed in the table, rank how often you would **predict** each one to occur, from **most** likely to **least** likely.

i) **most** likely combination

\_\_\_\_\_

ii)

\_\_\_\_\_

iii)

\_\_\_\_\_

iv)

\_\_\_\_\_

v)

\_\_\_\_\_

vi)

\_\_\_\_\_

vii) **least** likely combination

\_\_\_\_\_

- b) Throw the five dice **100** times and record your results in the table below.  
You may work with a partner when you throw the dice.

Combination	Tally	Frequency
1. All dice different		
2. One pair		
3. Two pairs		
4. One triple		
5. One triple + one pair		
6. Four dice the same		
7. Five dice the same		

- c) Use your results to calculate the probability of
- all dice different (i.e., combination number 1) \_\_\_\_\_
  - one pair (i.e., combination number 2) \_\_\_\_\_
- d) What would you do to get a more accurate estimate of all the probabilities?

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**Complete c) and d) by yourself and get your teacher to mark them.**

- e) In the table below:
- Record the results from at least four sets of 100 trials.
  - Add these up for each combination and put the total in the "Total" column

Combination	Group 1	Group 2	Group 3	Group 4	Total
1. All dice different					
2. One pair					
3. Two pairs					
4. One triple					
5. One triple + one pair					
6. Four dice the same					
7. Five dice the same					

f) Looking at the "Total" column, rank all the 7 combinations from the **most** likely to the **least** likely according to how often each type of combination **actually** occurred.

i) **most** common  
combination

\_\_\_\_\_

ii)

\_\_\_\_\_

iii)

\_\_\_\_\_

iv)

\_\_\_\_\_

v)

\_\_\_\_\_

vi)

\_\_\_\_\_

vii) **least** common  
combination

\_\_\_\_\_

g) Compare the **actual** results in f) with what you **predicted** in a). Give the number(s) of the combination(s) for which your prediction was

i) **least** accurate? \_\_\_\_\_

ii) **most** accurate? \_\_\_\_\_