Worksheet A: Arrangements investigation task 1

Complete this task with your group. You have **20 minutes** and will need to present your findings at the end.

Q1 Each letter can be used once only.

(a) Complete the table to show the number of arrangements of the letters given.

|  |  |  |  |
| --- | --- | --- | --- |
| **Letters** | **Possible arrangements** | **Number of letters** | **Number of arrangements** |
| D | D | 1 | 1 |
| CD | CD, DC | 2 | 2 |
| BCD |  |  |  |

(b) By listing only the arrangements that start with A and using the results for 3 letters, find the number of possible arrangements of these 4 letters.

|  |  |  |  |
| --- | --- | --- | --- |
| ABCD |  |  |  |

(c) Show how you found your answer.

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(d) Complete each of these statements with a number.

The number of arrangements with 4 letters is ............................ times the number of arrangements with 3 letters.

The number of arrangements with 5 letters is ............................ times the number of arrangements with 4 letters.

Worksheet A: Arrangements investigation task 1   
continued

(e) Complete this statement.

There are ................................. arrangements of the 10 letters ABCDEFGHIJ

when each letter can be used once only.

(f) Show how you found your answer.

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Q2 In how many different ways can the eight characters

6 7 8 9 ) ( \* &

be arranged to make an 8-character pattern when

(a) each character can be used once only

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(b) each character can be repeated?

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Q3 You do not have to evaluate your expressions in this question.

Halima is arranging 50 different characters to make a 50-character

You do not have to write all the missing terms of the expression, just the first 3 and the last 3.

pattern.

(a) Write an expression for the number of ways

Halima can do this when each character can be

repeated. Simplify your answer.

50× \_\_\_\_\_ × \_\_\_\_\_ × \_\_\_\_\_ ×...... ...... × \_\_\_\_\_ × \_\_\_\_\_ × \_\_\_\_\_ = \_\_\_\_\_

(b) Write an expression for the number of ways Halima can do this when each character can be used once only.

50× \_\_\_\_\_ × \_\_\_\_\_ × \_\_\_\_\_ ×...... ...... × \_\_\_\_\_ × \_\_\_\_\_ × \_\_\_\_\_ = \_\_\_\_\_