PIPE

A pipe | takes the output of the command before it and passes it as an input for the command after it.
For example, if u want to output the command sort, to the input of the command head:

sort a.txt | head -n 5

sort a.txt - sort lines of text file
head -n 5 - output the first n lines of the file

REGULAR EXPRESSIONS

They are patterns used to match strings in text. Powerful way to search, replace and manipulate text by specific patterns of characters.

.	Matches any single character
\	Changes the meaning of the character following it, between normal and special
[abc]	Matches any single character that appears in the list (a, b or c)
[a-z]	Matches any single character that belongs to the range (a ... z)
[^0-9]	Matches any single character that does not appear in the list $\notin (0 \dots 9)$
^	Beginning of line
$	End of line
\<	Beginning of word
\>	End of word
( )	Allows to group more characters into an expression, example : +(abc)
*	Previous expression zero or more times
+	Previous expression one or more times
?	Previous expression zero or one times
{min,max}	Previous expression at least min and at most max times
|	Logical OR between parts of an regular expression

Examples :

1. .* - any sequence of characters
2. [a-zA-Z02468] - any letter and any even digit
3. [,] - space or comma
4. ^[^0-9]+$ - the first ^ and the last $ are ensuring the match begins at the start of the string and goes until the end of the string
   [^0-9] is going to match strings that are only one character and the character is not 0-9
   + is going to match strings that are one or multiple characters that are not 0-9

GREP

The names breakdown is :

- re - regular expression
- p - print matching lines
- g - global, meaning the command should be applied to all lines in the file

Options arguments for grep :

- -E - use extended regular expressions, so the shell doesn't misinterpret characters in the command, for example grep "cat|dog" file treats | as a pipe, in contrast with grep -E "cat|dog" file which treats | as the logical OR
- -v - displays lines that do not match the given regular expression
- -i - case-insensitiv, meaning it ignores upper/lower case when matching
- -q - do not display matching lines, just exiting with 0 if found, or 1 if not found