(1**) Write a Shell Scripts that takes three numbers on the command line and does the following  
       - Checks that the number of command line arguments is correct (3). If not write an error message in a file called error.txt and exit  
       - If the number of command line arguments is correct write the numbers in a file called numbers, in ascending order.**

**Solution**

*#!/bin/bash*

*# Check if the number of arguments is not equal to 3*

*if [ $# -ne 3 ]; then*

*echo "Error: The script requires exactly 3 arguments." > error.txt*

*exit 1*

*fi*

*# If the number of arguments is correct, sort the numbers in ascending order and write them to a file*

*echo -e "$1\n$2\n$3" | sort -n > numbers.txt*  
(2**) Write A shell script that takes a directory as a command line arguments and writes the number of files and number of subfolders in a file called accounts.txt**

*#!/bin/bash*

*# Check if the number of arguments is not equal to 1*

*if [ $# -ne 1 ]; then*

*echo "Error: The script requires exactly 1 argument." > error.txt*

*exit 1*

*fi*

*# If the number of arguments is correct, count the number of files and subdirectories*

*num\_files=$(find "$1" -type f | wc -l)*

*num\_dirs=$(find "$1" -type d | wc -l)*

*# Write the counts to accounts.txt*

*echo "Number of files: $num\_files" > accounts.txt*

*echo "Number of subdirectories: $num\_dirs" >> accounts.txt*

(3) **Write A Shell Script that takes a simple arithmetic expression involving integers only and evaluates the value of the expression.  
For example if the input is  5 + 7 it should display 5  + 7 =12**

*#!/bin/bash*

*# Check if the number of arguments is not equal to 1*

*if [ $# -ne 1 ]; then*

*echo "Error: The script requires exactly 1 argument." > error.txt*

*exit 1*

*fi*

*# If the number of arguments is correct, evaluate the arithmetic expression*

*result=$(echo "$1" | bc)*

*# Display the result*

*echo "$1 = $result"*

(4**) Write a Sell script that takes a positive integer from the command line and displays its factorial. If the number entered is negative, display an error on the standard output**.

*#!/bin/bash*

*# Check if the number of arguments is not equal to 1*

*if [ $# -ne 1 ]; then*

*echo "Error: The script requires exactly 1 argument."*

*exit 1*

*fi*

*# Check if the argument is not a positive integer*

*if ! [[ $1 =~ ^[0-9]+$ ]]; then*

*echo "Error: The argument must be a positive integer."*

*exit 1*

*fi*

*# Calculate the factorial*

*factorial=1*

*for (( i=1; i<=$1; i++ ))*

*do*

*factorial=$((factorial \* i))*

*done*

*# Display the factorial*

*echo "The factorial of $1 is $factorial."*

(5) **Write a shell script that takes two folders from the command lines and deletes from directory 1 all the files that are also in directory 2. Check for the correct number of arguments, and display an appropriate message if the number of arguments is incorrect or if any of the arguments is not a folder.**

*#!/bin/bash*

*# Check if the number of arguments is not equal to 2*

*if [ $# -ne 2 ]; then*

*echo "Error: The script requires exactly 2 arguments."*

*exit 1*

*fi*

*# Check if the arguments are not directories*

*if [ ! -d "$1" ] || [ ! -d "$2" ]; then*

*echo "Error: Both arguments must be directories."*

*exit 1*

*fi*

*# Delete from directory 1 all the files that are also in directory 2*

*for file in "$1"/\*; do*

*if [ -f "$file" ] && [ -f "$2/$(basename "$file")" ]; then*

*rm "$file"*

*fi*

*done*

*echo "Operation completed successfully."*