1 - SYSTEM INFORMATION

```
uname -a                    # Display Linux system information

uname -r                    # Display kernel release information

cat /etc/redhat-release     # Show which version of Red Hat installed

uptime                      # Show how long the system has been running + load

hostname                    # Show system host name

hostname -I                 # Display all local IP addresses of the host

last reboot                 # Show system reboot history

date                        # Show the current date and time

cal                         # Show this month's calendar

w                           # Display who is online

whoami                      # Who you are logged in as
```

2 - HARDWARE INFORMATION

```
dmesg                       # Display messages in kernel ring buffer

cat /proc/cpuinfo           # Display CPU information

cat /proc/meminfo           # Display memory information

free -h                     # Display free and used memory ( -h for human readable,
                            -m for MB, -g for GB.)

lspci -tv                   # Display PCI devices

lsusb -tv                   # Display USB devices

dmidecode                   # Display DMI/SMBIOS (hardware info) from the BIOS

hdparm -i /dev/sda          # Show info about disk sda

hdparm -tT /dev/sda         # Perform a read speed test on disk sda

badblocks -s /dev/sda       # Test for unreadable blocks on disk sda
```

3 - PERFORMANCE MONITORING AND STATISTICS

```
top                              # Display and manage the top processes

htop                             # Interactive process viewer (top alternative)

mpstat 1                         # Display processor related statistics

vmstat 1                         # Display virtual memory statistics

iostat 1                         # Display I/O statistics

tail -100 /var/log/messages      # Display the last 100 syslog messages (Use
                                 /var/log/syslog for Debian based systems.)

tcpdump -i eth0                  # Capture and display all packets on interface eth0

tcpdump -i eth0 'port 80'        # Monitor all traffic on port 80 ( HTTP )

lsof                             # List all open files on the system

lsof -u user                     # List files opened by user

free -h                          # Display free and used memory ( -h for human
                                 readable, -m for MB, -g for GB.)

watch df -h                      # Execute "df -h", showing periodic updates
```

4 - USER INFORMATION AND MANAGEMENT

```
id                               # Display the user and group ids of your
                                 current user.

last                             # Display the last users who have logged onto
                                 the system.

who                              # Show who is logged into the system.

w                                # Show who is logged in and what they are
                                 doing.

groupadd test                    # Create a group named "test".

useradd -c "John Smith" -m john  # Create an account named john, with a
                                 comment of "John Smith" and create the user's
                                 home directory.

userdel john                     # Delete the john account.

usermod -aG sales john           # Add the john account to the sales group
```

5 - FILE AND DIRECTORY COMMANDS

```
ls -al                                  # List all files in a long listing (detailed) format

pwd                                     # Display the present working directory

mkdir directory                         # Create a directory

rm file                                 # Remove (delete) file

rm -r directory                         # Remove the directory and its contents
                                        recursively

rm -f file                              # Force removal of file without prompting for
                                        confirmation

rm -rf directory                        # Forcefully remove directory recursively

cp file1 file2                          # Copy file1 to file2

cp -r source_directory destination      # Copy source_directory recursively to
                                        destination. If destination exists, copy
                                        source_directory into destination,
                                        otherwise create destination with the
                                        contents of source_directory.

mv file1 file2                          # Rename or move file1 to file2. If file2 is
                                        an existing directory, move file1 into directory
                                        file2

ln -s /path/to/file linkname            # Create symbolic link to linkname

touch file                              # Create an empty file or update the access
                                        and modification times of file.

cat file                                # View the contents of file

less file                               # Browse through a text file

head file                               # Display the first 10 lines of file

tail file                               # Display the last 10 lines of file

tail -f file                            # Display the last 10 lines of file and "follow"
                                        the file as it grows.
```

6 - PROCESS MANAGEMENT

```
ps                              # Display your currently running processes

ps -ef                          # Display all the currently running processes on the
                                  system.

ps -ef | grep processname       # Display process information for processname

top                             # Display and manage the top processes

htop                            # Interactive process viewer (top alternative)

kill pid                        # Kill process with process ID of pid

killall processname             # Kill all processes named processname

program &                       # Start program in the background

bg                              # Display stopped or background jobs

fg                              # Brings the most recent background job to
                                  foreground

fg n                            # Brings job n to the foreground
```

7 - FILE PERMISSIONS
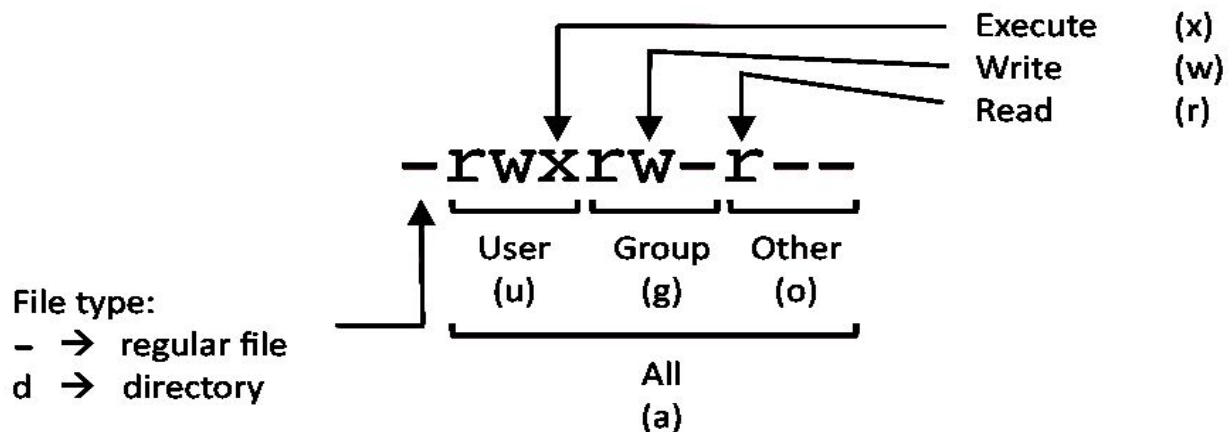

```
        PERMISSION          EXAMPLE

        U    G    W
        rwx  rwx  rwx       chmod 777 filename   # Use sparingly!
        rwx  rwx  r-x       chmod 775 filename
        rwx  r-x  r-x       chmod 755 filename
        rw-  rw-  r--       chmod 664 filename
        rw-  r--  r--       chmod 644 filename
```

```
          LEGEND

          U = User
          G = Group
          W = World

          r = Read
          w = write
          x = execute
          - = no access
```

8 - NETWORKING

```
ip a                         # Display all network interfaces and IP address

ip addr show dev eth0        # Display eth0 address and details

ethtool eth0                 # Query or control network driver and hardware settings

ping host                    # Send ICMP echo request to host

whois domain                 # Display whois information for domain

dig domain                   # Display DNS information for domain

dig -x IP_ADDRESS            # Reverse lookup of IP_ADDRESS

host domain                  # Display DNS IP address for domain

hostname -i                  # Display the network address of the host name.

hostname -I                  # Display all local IP addresses of the host.

wget http://domain.com/file  # Download http://domain.com/file

netstat -nutlp               # Display listening tcp and udp ports and corresponding
                               programs
```

9 - ARCHIVES (TAR FILES)

```
tar cf archive.tar directory     # Create tar named archive.tar containing
                                   directory.

tar xf archive.tar               # Extract the contents from archive.tar.

tar czf archive.tar.gz directory # Create a gzip compressed tar file name
                                   archive.tar.gz.
```

```
tar xzf archive.tar.gz              # Extract a gzip compressed tar file.

tar cjf archive.tar.bz2 directory   # Create a tar file with bzip2 compression

tar xjf archive.tar.bz2             # Extract a bzip2 compressed tar file.
```

10 - INSTALLING PACKAGES

```
yum search keyword              # Search for a package by keyword.

yum install package             # Install package.

yum info package                # Display description and summary information
                                  about package.

rpm -i package.rpm              # Install package from local file named
                                  package.rpm

yum remove package              # Remove/uninstall package.

tar zxvf sourcecode.tar.gz      # Install software from source code.
cd sourcecode
./configure
make
make install
```

11 - SEARCH

```
grep pattern file               # Search for pattern in file

grep -r pattern directory       # Search recursively for pattern in directory

locate name                     # Find files and directories by name

find /home/john -name 'prefix*' # Find files in /home/john that start with "prefix".

find /home -size +100M          # Find files larger than 100MB in /home
```

12 - SSH LOGINS

```
ssh host                        # Connect to host as your local username.

ssh user@host                   # Connect to host as user

ssh -p port user@host           # Connect to host using port
```

13 - FILE TRANSFERS

```
scp file.txt server:/tmp
```
\# Secure copy `file.txt` to the /tmp folder on `server`

```
scp server:/var/www/*.html /tmp
```
\# Copy `*.html` files from `server` to the local /tmp folder.

```
scp -r server:/var/www /tmp
```
\# Copy all files and directories recursively from `server` to the current system's /tmp folder.

```
rsync -a /home /backups/
```
\# Synchronize `/home` to `/backups/home`

```
rsync -avz /home server:/backups/
```
\# Synchronize files/directories between the local and remote system with compression enabled

14 - DISK USAGE

```
df -h
```
\# Show free and used space on mounted filesystems

```
df -i
```
\# Show free and used inodes on mounted filesystems

```
fdisk -l
```
\# Display disks partitions sizes and types

```
du -ah
```
\# Display disk usage for all files and directories in human readable format

```
du -sh
```
\# Display total disk usage off the current directory

15 - DIRECTORY NAVIGATION

```
cd ..
```
\# To go up one level of the directory tree. (Change into the parent directory.)

```
cd
```
\# Go to the $HOME directory

```
cd /etc
```
\# Change to the /etc directory