50 Linux commands that are very useful for DevOps tasks, along with brief explanations and examples:

1. rsync - Remote File Copy:

- Efficiently copy files between local and remote systems.

```
rsync -avz /local/path user@remote:/remote/path
```

2. awk - Text Processing:

- A powerful text processing tool for pattern scanning and reporting.

```
cat logfile | awk '/error/ {print $1, $2}'
```

3. sed - Stream Editor:

- Perform text transformations on input streams.

```
cat file.txt | sed 's/old/new/g'
```

4. find - Search for Files:

- Search for files in a directory hierarchy.

```
find /path/to/search -name "*.txt"
```

5. tar - Archive and Compress:

- Create compressed archive files.

```
tar -czvf archive.tar.gz /path/to/directory
```

6. curl - Transfer Data with URLs:

- Transfer data from or to a server.

```
curl -O https://example.com/file.txt
```

7. lsof - List Open Files:

- List information about files opened by processes.

```
lsof -i :80
```

8. iptables - IP Packet Filter:

- Configure IP packet filter rules.

```
iptables -A INPUT -p tcp --dport 22 -j ACCEPT
```

9. grep - Search Text Patterns:

- Search for patterns in files.

```
grep "pattern" /path/to/search
```

10. awk '{print $NF}' - Extract Last Column:

- Extract and print the last column from a file.

```
cat data.txt | awk '{print $NF}'
```

11. tee - Redirect Output to File and Terminal:

- Redirect output to a file and display it on the terminal.

```
command | tee output.txt
```

12. htop - Interactive Process Viewer:

- Display an interactive process viewer.

```
Htop
```

13. netstat - Network Statistics:

- Display network connections, routing tables, interface statistics, masquerade connections, etc.

```
netstat -tulpn
```

14. awk '!seen[$0]++' - Remove Duplicate Lines:

- Remove duplicate lines from a file.

```
awk '!seen[$0]++' file.txt
```

15. tail -n 20 - Display Last 20 Lines:

- Display the last N lines of a file.

```
tail -n 20 logfile.txt
```

16. du -h - Show Disk Usage:

- Display disk usage of files and directories.

```
du -h /path/to/directory
```

17. ps aux | grep process_name - List Processes:

- List all processes and filter by name.

```
ps aux | grep nginx
```

18. watch -n 1 command - Execute Command Periodically:

- Run a command repeatedly at a specified interval.

```
watch -n 1 "ps aux | grep process_name"
```

19. df -h - Display Free Disk Space:

- Show free disk space on mounted filesystems.

```
df -h
```

20. nc -l 8080 - Simple Netcat Server:

- Start a simple server using netcat.

```
nc -l 8080
```

21. cut -d' ' -f1 - Extract First Column:

- Extract and print the first column from a file.

```
cut -d' ' -f1 file.txt
```

22. journalctl - View System Logs:

- Query and display messages from the journal.

```
journalctl -xe
```

23. chmod +x filename - Make File Executable:

- Grant execute permission to a file.

```
chmod +x script.sh
```

24. chown user:group filename - Change File Owner:

- Change the owner and group of a file.

```
chown user:group file.txt
```

25. nohup command & - Run Command in Background:

- Run a command that keeps running even after logging out.

```
nohup ./script.sh &
```

26. head -n 10 - Display First 10 Lines:

- Display the first N lines of a file.

```
head -n 10 file.txt
```

27. fdisk -l - List Partitions:

- Display the partition table for all disks.

```
fdisk -l
```

28. history - View Command History:

- Display the command history for the current session.

```
History
```

29. uptime - Check System Uptime:

- Display how long the system has been running.

```
Uptime
```

30. crontab -e - Edit Cron Jobs:

- Edit the crontab file to schedule jobs.

```
crontab -e
```

31. ip a - Show IP Addresses:

- Display network interfaces and their IP addresses.

```
ip a
```

32. systemctl status service_name - Check Service Status:

- View the status of a systemd service.

```
systemctl status ssh
```

33. echo "Hello, World!" > file.txt - Write to File:

- Write text to a file (overwrites existing content).

```
echo "New content" > file.txt
```

34. useradd username - Add User:

- Add a new user to the system.

```
useradd john_doe
```

35. passwd username - Set User Password:

- Set or change the password for a user.

```
passwd john_doe
```

36. ps -ef - Show All Processes:

- Display information about all processes.

```
ps -ef
```

37. kill -9 process_id - Forcefully Kill Process:

- Terminate a process forcefully.

```
kill -9 12345
```

38. scp file.txt user@remote:/path - Secure Copy:

- Copy files securely between local and remote systems.

```
scp localfile.txt user@remote:/path
```

39. free -m - Display Free Memory:

- Show the amount of free and used memory.

```
free -m
```

40. systemctl restart service_name - Restart Service:

- Restart a systemd service.

```
systemctl restart apache2
```

41. echo $VARIABLE - Display Environment Variable:

- Display the value of an environment variable.

```
echo $HOME
```

42. ps aux | sort -rk 3,3 - Top CPU Consuming Processes:

- List processes sorted by CPU usage.

```
ps aux | sort -rk 3,3
```

43. tail -f /var/log/auth.log - Monitor Authentication Logs:

- Continuously monitor authentication logs.

```
tail -f /var/log/auth.log
```

44. systemctl stop service_name - Stop Service:

- Stop a systemd service.

```
systemctl stop nginx
```

45. wget - Download Files from the Web:

- Download files from the internet.

```
wget https://example.com/file.txt
```

46. grep -i "error" /path/to/log/*.log - Case-Insensitive Search:

- Search for errors in logs regardless of case.

```
grep -i "error" /path/to/log/*.log
```

47. df -Th - Display Disk Space Usage with Type:

- Show disk space usage with filesystem type.

```
df -Th
```

48. journalctl --since "2023-01-01" - View Logs Since Date:

- Display journal logs since a specific date.

```
journalctl --since "2023-01-01"
```

49. systemctl enable service_name - Enable Service at Boot:

- Enable a systemd service to start at boot.

```
systemctl enable apache2
```

50. awk -F: '/\/home/ {print $1, $7}' /etc/passwd - Extract User and Home Directory:

- Extract and print username and home directory from /etc/passwd.

```
awk -F: '/\/home/ {print $1, $7}' /etc/passwd
```