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| **Question** | **Answer** |
| **Regular expression** |  |
| x\* | Zero or more occurrences of x |
| [0-9]\{3\} | Exactly three digits |
| xx\* | One or more occurrences of x |
| [0-9]\{3,5\} | 3, 4 or 5 digits |
| x\{1,5\} | 1, 2, 3, 4 or 5 occurrences of x |
| [0-9]\{1,3\},[0-9]\{3\} | 1, 2 or 3 digits, and followed by a comma “,” and followed by exactly 3 digits |
| x\{5,\} | 5 or more occurrences of x |
| ^\... | Any line starting with period (.) and followed by two characters |
| x\{10\} | Exactly 10 occurrences of x |
| [A-Za-z\_][A-Za-z\_0-9]\* | Any upper or lower case character or underscore ‘\_’ followed by zero or more characters, underscores ‘\_’ or digits |
| [0-9] | Any digit |
| \([A-Za-z0-9]\{1,\}\)\1 | One or more occurrences of any character or digit, store in register 1 |
| [0-9]\* | One or more digits |
| ^Begin$ | Any line that has only ‘Begin’ |
| [0-9][0-9][0-9] | Any three digits |
| ^\(.\).\*\1$ | Matches all line in which first character is same as last character |
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| **Output Command** |  |
| who | grep 'mary' | Find user ‘mary’ is logged in |
| who | grep '^mary' | Find a logged in user whose name start with ‘mary’ |
| grep '[Uu]nix' ch?/\* | Find Unix or unix in any file with three letters starting with ‘ch’ |
| ls -l | sort +4n | List all files in current directory and sort them according to 5th field, skip first 4 |
| sed '/^$/d' text > text.out | Delete empty lines, and Copy the output to text.out |
| sed 's/\([Uu]nix\)/\1(TM)/g' text > text.out | Substitute any Unix or unix to Unix(TM) or unix(TM) respectively and save it to text.out |
| date | cut -c12-16 | Display the current hours:minutes |
| date | cut -c5-11,25- | sed 's/\([0-9]\{1,2\}\)/\1,/' | Display the current month day and year, append comma “,” after every 1 or 2 digits i.e. adding a comma “,” after the day |
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| Commands |  |
| Find all logged-in users with usernames of at least four characters | who | grep ‘[A-Za-z]\{4, \}’ |
| Find all users on your system whose user ids are greater than 99 | cut -d: -f4 /etc/passwd | grep '[0-9]\{3,\}' |
| Find the number of users on your system whose user ids are greater than 99 | cut -d: -f4 /etc/passwd | grep '[0-9]\{3,\}' | wc –l |
| List all the files in your directory in decreasing order of file size | ls -alS | grep -v '^d' |
|  |  |

1. $ vi time

date | cut -c12-19

$ chmod 744 time

1. $ vi time2

date | cut -c5-10

$ chmod 744 time2

1. $ vi message

wall hello world

$ chmod 744 message

1. $ date | cut -c1-10 > file
2. $ echo “Dear Colleagues” >> file
3. $ vi memo

date | cut -c1-10 > memo.out

echo Dear Colleague >> memo.out

cat memo >> memo.out

echo Regards Adnan >> memo.out

1. $ vi mv.file

read x

read y

echo $x

echo $y

$ cmod 744 mv.file

1. $ vi mv1.file

mkdir newdir

for file in $(ls)

do

mv $(file) newdir/$file

done

$ chmod 744 mv1.file

1. $ vi search

for file in $\*

do

if grep $word $file > /dev/null

then

echo $word is in $file

else

echo $word not found in $file

fi

done

1. stty –tabs

stty erase

stty echoe

1. $ PS1=Hello
   1. echo $HOME
   2. echo $TERM
   3. echo $PATH