Q1 Loki-n In Your Notes (10 points)

Define/Explain the following terms.

1. root

Primary usage is as the superuser. Partial credit given for making mention of the directory root being the highest level directory.

2. Zombie process

Must include mention of it being a child process and that it has completed executing.

3. umask

Must state that it is related to default permissions. Can be used to see what the value is or temporarily change the value.

4. /etc/passwd

Location of user information. If mention of the password information being stored here, -1

5. vim

a powerful text editor for editing files in the terminal window.

Q2 Channel Surfing with WandaVision (25 points)

1. Describe the three main channels used by processes.

0-Standard in – input (usually keyboard)

1-Standard out – output (usually terminal)

2-Standard error – also an output, but for error conditions (usually terminal)

2. How does a pipeline work? In what circumstances would we use the tee operator?

Must include that the student shows understanding that the output of one process is used as input to another. tee operator would be used anytime we want to send the output to two separate locations.

3. Give an example command (not given in the text) of the use of the redirection operator to append stdout to a file.

Must include > and a file. The command itself can be any command that would generate output.

4. Give an example command (not given in the text) of the use of a pipeline.

Must include | with a command on either side. The first command can be any command that would generate output. The second can be anything that takes input.

5. Give an example command (not given in the text) of the use of the redirection operator to discard the output generated by stderr.

Must include 2> \dev\null. The command itself can be any command that could generate error text.

Q3 No Way /home (35 points)

For items 1-10, show the command(s) you would use to perform each of the following tasks. Assume you begin with the shown prompt in a Terminal (a normal user on a machine named "workstation"). If the prompt changes for any reason, show what the prompt becomes.

```
[normaluser@workstation ~]$
```

1. Create 2 Users with the given combination
    a. User: {first letter of your name} + {your surname} pw: m!dTerm3xam
    b. User: {your name} + {first letter of your surname} pw: M1dt3rmEx@m

```
useradd or adduser jledet
useradd or adduser josephl
sudo passwd jledet (followed by m!dTerm3xam)
sudo passwd josephl (followed by M1dt3rmEx@m)
```

2. Create a new group called midterm and add both users to the group

```
sudo groupadd midterm
usermod -aG midterm jledet
usermod -aG midterm josephl
```

3. Switch to the first new user (a. above) you created in that user's home directory

```
su - jledet
```

4. Create a Documents Directory.

```
[jledet@workstation ~]$ mkdir Documents
```

5. Change the permissions on the Documents directory to allow others (not owner and not in group) to write

```
chmod o+w Documents
```

6. Change the working directory to the user's Documents directory. Then, using a single command create a file called "file1.txt" that has the text "This is a test file".

```
cd Documents
echo "This is a test file" > file1.txt
```

7. Switch to the second new user (b. above) you created but stay in the first user's Documents directory

```
su josephl
```

8. Temporarily change the default permissions for new files to be the following:
a. Owner - write only, Group - read only, Other – none

```
umask 537
```

9. With a single command create a file named "file2.txt" with the same text as file1.txt in the same directory (Documents)

```
cat file1.txt > file2.txt
```

10. Using superuser access change the group for both files to midterm

```
sudo chown :midterm file*.txt
```

11. If you were to run the ls –l command inside of the Documents directory, show the expected output?

```
-rw-rw-r--     jledet    midterm   file1.txt
--w-r-----     josephl   midterm   file2.txt
```

12. Fill in the following table with the permissions for the files you created

	file1.txt		file2.txt	
	Can read	Can Write	Can read	Can Write
User 1	Y / N	Y / N	Y / N	Y / N
User 2	Y / N	Y / N	Y / N	Y / N

13. Imagine I were to run the following three commands where `{rwx}` is a three digit number (the same three digit number in command 1 and 3). Give an example of a three digit number where the permissions on the file are the same before and after the last command is run. What are the permissions on the file set to in your example. If no such example exists, explain why.

```
[normaluser@workstation ~]$ umask {rwx}
[normaluser@workstation ~]$ touch file3.txt
[normaluser@workstation ~]$ chmod {rwx} file3.txt
```

No such example exists because every 1 bit in umask prevents that access but every 1 bit in chmod gives access.

14. When I run the command "`rm -r *.*`", not all of my files and folders are deleted. Give two (2) possible reasons some items are not deleted.

Some files/folders might not have a . in the name.
Some folders might not have permission for this user to delete (write).

Q4 mkdir of Madness (30 points)

Below is given a list of users and their groups. And a list of files that have been created within the MCU directory.

```
Users and their groups:
tstark   tstark, ironman, avengers
thor     thor, asgard, avengers
loki     loki, asgard, villains
hulk     hulk, avengers
pquill   pquill, guardians

File attributes:
drwxrwxr-x     hulk        avengers    mcu
  -rw-r--r--   pquill      pquill      gamora
  --wxrw--w-   tstark      avengers    starktower
  -rwxrw----   loki        villains    evilPlans
  -r--r--r--   thor        asgard      disney
```

1. Some of our users are able to view a list of files in the folder, but cannot view the contents of certain files. Which of the users can do this and which files can they see in the listing but not view the contents?
   tstark and users not in the avengers group cannot see the contents of starktower. Any user not in the villains group cannot see the contents of evilplans.
2. Give two (2) possible commands we could run to give one of the users access to view the file contents (note: you do not need to maintain existing access).
   We can change permissions on the file to give read access.
   `chmod u+r starktower (now tstark has read on starktower)`
   `chown pquill starktower (now tstark has read on starktower)`
   `usermod -aG avengers pquill (now pquill has read on starktower)`
3. Some of our users are able to edit the contents of a file in the folder, but cannot delete the file itself. Which of the users can do this and which files can they edit?
   pquill – gamora and starktower
   loki – evilplans and starktower
4. Give two (2) possible commands we could run to give one of the users access to delete files in the folder (note: you do not need to maintain existing access).
   `chmod o+w mcu (now both pquill and loki can delete)`
   `chown pquill mcu (now pquill can delete)`
   `chown :villains mcu (now loki can delete)`
5. Some of our users are able to delete files in the folder, but cannot edit certain files. Which of the users can do this and which files can they delete but not edit?
   tstark – gamora, evilplans, disney
   thor – gamora, evilplans, disney
   hulk – gamora, evilplans, disney
6. Give two (2) possible commands we could run to give one of the users access to edit the files (note: you do not need to maintain existing access).
   `chmod u+w disney (now thor has write on disney)`
   `chown tstark gamora (now tstark has write on gamora)`
   `usermod -aG villains hulk (now hulk has write on evilplans)`