Homework 6

Problem 6.1
Solution:

a) When there is damage to the filesystem the *"lost+found"* directory is used by *fsck*. If files are lost because of corruption they will be linked to the filesystem's *"lost+found"* inode.

b) Free blocks are provided for the user to use. And, available blocks are provided for the user of the filesystem to use too, but they are less in quantity than the free blocks. If the user uses all of the available blocks then he/she cannot add more data on the filesystem, and there is still going to be some free space left for the root of the filesystem.

c) Nothing happens. We just unlinked *vhd.ext3* and the memory still remains mounted and will be until it is manually unmounted.

d) There was a decrease by 1 in the free inode number. And that happened because the inode has been allocated for storing the metadata of *big.data*.

e) By doing *"sudo chattr +i big.data"* we added an attribute to the file *big.data*, and that attribure stands for immutable. An immutable file cannot be changed in any way. To list attributes of a file we could do *"lsattr big.data"*.

f) By doing *"sudo chroot mnt /bin/sh"*, we are changing the root of the filesystem to be *mnt* instead of /. It was important to copy a statically linked version of *busybox* because it is preventing linking to other libraries.

h) The block number and the inode number have increased because when we unlinked the *vhd.ext3* before it remained still in memory (it was still mounted). By unmounting now we fully unlinked and the inode number and the block number increased.