Final Exam

Due Dec 9 at 11:59pm **Points** 39.96 **Questions** 37

Available Dec 6 at 8am - Dec 11 at 11:59pm 6 days Time Limit 120 Minutes

Instructions

Finish this test before the **due date**. Once you begin, you will have 120 minutes to complete your work. You must complete the exam is a single session, please plan your time accordingly. If you do not submit before that time your incomplete exam will be automatically submitted as is.

You can look at lectures, lab assignments, texts and even use your Linux account, but you may not consult any other individuals for help.

Each question is worth 1.08 points, for an exam total of about 40 points.

Multiple choice questions with square check-boxes may have more than one correct answer. Multiple choice questions with round radio-buttons have only one correct answer.

Any code fragments you are asked to analyze are assumed to be contained in a program that has all the necessary variables defined and/or assigned.

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	111 minutes	36.54 out of 39.96

Score for this quiz: 36.54 out of 39.96

Submitted Dec 9 at 11:17pm
This attempt took 111 minutes.

Question 1	0.54 / 1.08 pts

	\$ cat colors
	red
	red
	green
	purple
	green
	Given the file colors as shown above, what filter(s) will purge duplicates displayed to standard output? (Select any that apply.)
Correct!	\$ cat colors uniq
You Answered	✓ \$ cat colors uniq -u
Correct!	☑ \$ sort -d colors uniq

Hints Feedback Key: B, D \$ cat colors red red green purple green # duplicates purged \$ sort colors | uniq green purple red \$ sort -d colors | uniq green purple red # non adjacent duplicates retained \$ cat colors | uniq red green purple green \$ cat colors | uniq -u green purple green

Question 2 1.08 / 1.08 pts

G	iven the child script as follows:
e a b	!/bin/bash cho "==>Entering child process<==" oples=green ananas=black cho "==Showing fruit variables in child<==" cho "apples are \$apples and bananas are \$bananas"
G	iven an alias written as follows:
\$	alias fruit='echo apples are \"\$apples\" and bananas are \"\$bananas\"
G	iven the parent variables defined as follows:
\$	apples=red; bananas=yellow
1	iven the sequence: \$./child \$ fruit
	Tuit
	/hat will be the output after line 2:?
	/hat will be the output after line 2:? apples are "green" and bananas are "black"
	/hat will be the output after line 2:? apples are "green" and bananas are "black" apples are "red" and bananas are "yellow"
	/hat will be the output after line 2:? apples are "green" and bananas are "black" apples are "red" and bananas are "yellow"
	/hat will be the output after line 2:? apples are "green" and bananas are "black" apples are "red" and bananas are "yellow" apples are green and bananas are black
	/hat will be the output after line 2:? apples are "green" and bananas are "black" apples are "red" and bananas are "yellow" apples are green and bananas are black
	/hat will be the output after line 2:? apples are "green" and bananas are "black" apples are "red" and bananas are "yellow" apples are green and bananas are black
	/hat will be the output after line 2:? apples are "green" and bananas are "black" apples are "red" and bananas are "yellow" apples are green and bananas are black

Correct!

\$ cat child

#!/bin/bash
echo "==>Entering child process<=="
apples=green
bananas=black

echo "==Showing fruit variables in child<==" echo "apples are \$apples and bananas are \$bananas"

\$ child

==>Entering child process<== ==Showing fruit variables in child<== apples are green and bananas are black

\$ fruit

apples are "red" and bananas are "yellow"

The child cannot change the parent's variables.

Question 3 1.08 / 1.08 pts

Given the following listing for the file **permslice** what will be the output of this sequence after line 3:?

1: \$ Is -I permslice

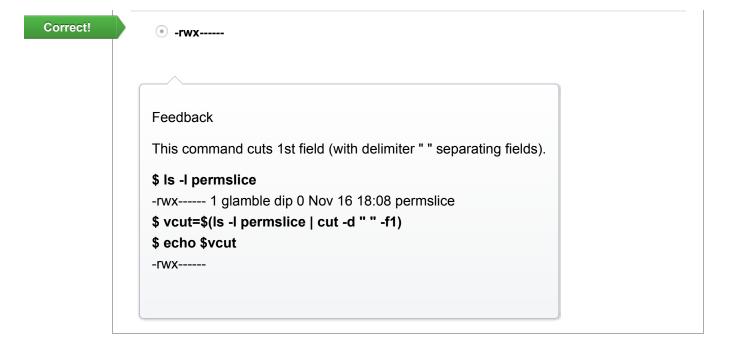
-rwx----- 1 glamble dip 0 Nov 16 18:17 permslice

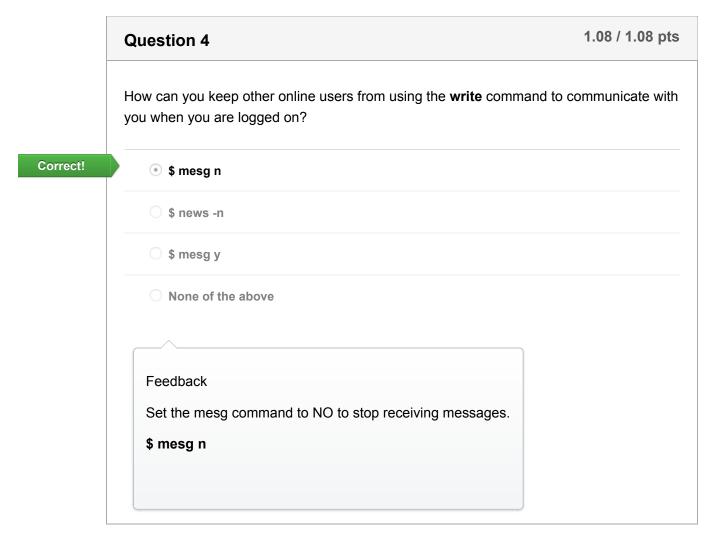
2: \$ vcut=\$(Is -I permslice | cut -d " " -f1)

3: \$ echo \$vcut

O 1			
○ -r			

-rwx





	Question 5	1.08 / 1.08 pts
	In a regular expression a . (dot) matches a <i>single</i> character.	
Correct!	True	
	○ False	
	Feedback The character "." (dot) is a special regular expression <i>meta-characte</i> will match any single character, except the end-of-line character.	r. By itself it

	Question 6	1.08 / 1.08 pts
	The command to list <i>all</i> the files that have filenames that start with with a number from 1 to 3 is	the letter p and end
	○ \$ Is p?1-3	
	○ \$ Is p[1-3]*	
Correct!	● \$ ls p*[1-3]	
	○ \$ Is p[3]	

\$ Is p*[1-3]

This command anchors p as the starting letter allowing any (including none) subsequent letters ending with a number 1, 2 or 3.

Example:

\$ Is p*[1-3]

p1 p2 pabc2 paul2 pc3 pop3

Question 7 1.08 / 1.08 pts

Given the file mathex as follows:

\$ cat mathex

2 + 2

12 * 3

5/0

What will be the result of redirecting **stdin**, **stdout** and **stderr** as shown in the command line below?

\$ bc < mathex > answers 2>errors

Correct!

answers file will contain 36 errors file will be empty answers file will be empty orrors file will contain an error message answers file will contain 4 36 errors file will contain an error message The answers file will not be created The **errors** file will contain 36 and an error message Feedback bc command reads input from redirected mathex file, writes standard output to the answers file and stdard error to the errors file. \$ cat answers 4 36 \$ cat errors Runtime error (func=(main), adr=5): Divide by zero

Question 8 1.08 / 1.08 pts

\$ grep -r tomato /usr 2>&1 /dev/null &

\$ ps

PID TTY TIME CMD 1567 pts/0 00:00:00 bash 2265 pts/0 00:00:01 grep 2266 pts/0 00:00:00 ps

Given the snapshot of the currently running processes shown above how can you terminate the background **grep** command?

\$ fg 2265

\$ sleep 2265

\$ kill 2266

Correct!

\$ kill 2265

Feedback

To stop the background process running the **grep** command use the asynchronous signal **kill** <job number>.

\$ ps

 PID
 TTY
 TIME
 CMD

 1567
 pts/0
 00:00:00
 bash

 2265
 pts/0
 00:00:01
 grep

 2266
 pts/0
 00:00:00
 ps

\$ kill 2265

[1]+ Terminated grep -r potato /usr /dev/null 2>&1 [glamble@linux60812 final]\$ ps
PID TTY TIME CMD
1567 pts/0 00:00:00 bash
2280 pts/0 00:00:00 ps

Question 9	1.08 / 1.08
Given the following contents of the todo file as shown below:	
\$ cat todo	
groceries	
bills	
laundry	
exercise	
haircut bank	
Use sort as a filter, to rewrite the following sequence of commands:	
\$ sort todo > someday	
\$ head -n2 someday	
\$ rm someday	
\$ cat todo sort head -n2	
\$ sort today someday head -n2	
\$ cat todo someday sort	
○ \$ cat todo sort head	
G Cat todo Soft Head	

Hints

Feedback

\$ sort todo > someday

\$ head -n2 someday

bank

bills

\$ rm someday

The above sequence of commands can be rewritten as a filter using **sort**:

\$ cat todo | sort | head -n2

bank

bills

Question 10 1.08 / 1.08 pts

Consider the following error message this user received trying to run **bdayscript**. What might be a logical next step to troubleshoot why the script will not run?

\$ Is -I bdayscript

-rwxr-x--- 1 glamble dip 0 Nov 15 11:29 bdayscript

\$ bdayscript

-bash: bdayscript: command not found

Enable execute permission for group and others.

\$ chmod -v 777 bdayscript

mode of `bdayscript' changed to 0777 (rwxrwxrwx)

Correct!

(0)

Check the environment variable setting to see if the current directory is on the user's path.

\$ pwd

/home/glamble/cs30a/bin

\$ echo \$PATH

Feedback

Oops, the current directory is not on the user's path:

\$ pwd

/home/glamble/cs30a/bin

\$ echo \$PATH

/sbin:/bin:/usr/sbin:/usr/bin:/usr/local/sbin:/usr/local/bin:/usr/lib:/usr/bin/X11:/usr/local/bin:/opt/gnu/bin

	Question 11	0.54 / 1.08 pts
	Using the find utility, peform the following task: List the inode numbers of all files in the current working directory whose f.c. (List all that apply.)	îlenames end in
	□ \$ findinum "*.c"	
	S find . "*.c" -inum	
Correct Answer	□ \$ findname "*.c" -ls	
Correct!		

	Question 12	1.08 / 1.08 pts
	The following shell variables have been created as follows:	
	\$ penny=one; nickel=five; dime=ten	
	How can you print the values of the shell variables at the command lapply.)	ine? (Select all that
	□ \$ echo penny nickel dime	
	\$ echo '\$penny' '\$nickel' '\$dime'	
Correct!		
Correct!	\$ echo \$penny \$nickel \$dime	

prints the names of the shell variables \$ echo penny nickel dime penny nickel dime

\$ echo '\$penny' '\$nickel' '\$dime' \$penny \$nickel \$dime

print the values of the shell variables \$ echo "\$penny" "\$nickel" "\$dime" one five ten

print the values of the shell variables
\$ echo \$penny \$nickel \$dime
one five ten

Question 13 0.54 / 1.08 pts

Say the user tries to run the script moonwalk receiving the error message below:

\$./moonwalk

-bash: ./moonwalk: Permission denied

\$ Is -I moonwalk

-rw----- 1 glamble dip 0 Nov 19 10:01 moonwalk

How can the user enable execute permissions for the script file **moonwalk**? (Select all that apply.)

You Answered

\$ add +x moonwalk

□ \$ chmod 600 moonwalk

Correct!

\$ chmod 700 moonwalk

Correct!

\$ \$ chmod u+x moonwalk

Feedback

Key: C, D

Using the **chmod** command, the user can add the mnemonic setting for execute permission or set the execute bit numerically.

\$ Is -I moonwalk

- -rw----- 1 glamble dip 0 Nov 19 10:01 moonwalk
- \$ chmod 700 moonwalk
- \$ Is -I moonwalk
- -rwx----- 1 glamble dip 0 Nov 19 10:01 moonwalk
- \$ Is -I moonwalk
- -rw----- 1 glamble dip 0 Nov 19 10:01 moonwalk
- \$ chmod +x moonwalk
- \$ Is -I moonwalk
- -rwx----- 1 glamble dip 20 Nov 19 10:04 moonwalk

\$./moonwalk

to the moon!

Question 14	1.08 / 1.08 pts
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\$ ps -l

FS UID PID PPID C PRI NI ADDR SZ WCHAN TTY TIME CMD

0 S 1452 1567 1566 0 80 0 - 28856 wait pts/0 00:00:00 bash

0 T 1452 3514 1567 0 80 0 - 25227 signal pts/0 00:00:00 sleep

0 R 1452 3515 1567 0 80 0 - 27032 - pts/0 00:00:00 ps

What is the parent process ID of the running command?

3515

3514

0 1566 Correct! 1567 Feedback \$ ps -I PPID C PRI NI ADDR SZ WCHAN TTY FS UID PID **CMD** TIME 0 S 1452 1567 1566 0 80 0 - 28856 wait pts/0 00:00:00 bash 0 T 1452 3514 1567 0 80 0 - 25227 signal pts/0 00:00:00 sleep 0 **R** 1452 3515 **1567** 0 80 0 - 27032 pts/0 00:00:00 ps The parent process ID (PPID) of the running (S=R) **ps** command is 1567.

\$ echo \$PATH //sbin://bin:/usr/sbin:/usr/local/sbin:/usr/local/bin:/usr/lib:/usr/bin/X11:/usr/local/bin:/oş What is the fourth directory on this path? //usr/sbin //usr/local/sbin //usr/local/sbin //usr/local/sbin //usr/local/bin Feedback The ":" delimiter separates the directories.

0.72 / 1.08 pts **Question 16** Using the grep command with the -n option how can you find the line number for the quote "Like a diamond in the sky" in the file twinkle? (Select all that apply.) \$ cat twinkle Twinkle, twinkle, little star, How I wonder what you are! Up above the world so high, Like a diamond in the sky. Correct! \$ grep -n 'Like a diamond in the sky' twinkle Correct! \$ grep -n "Like a diamond in the sky" twinkle You Answered \$ grep -n Like a diamond in the sky < twinkle</p> Correct! \$ grep -n "Like a diamond in the sky" < twinkle</p> Feedback Key: A, B, D \$ grep -n 'Like a diamond in the sky' twinkle 4:Like a diamond in the sky. \$ grep -n "Like a diamond in the sky" twinkle 4:Like a diamond in the sky. \$ grep -n "Like a diamond in the sky" < twinkle 4:Like a diamond in the sky.

Question 17 1.08 / 1.08 pts

You can execute the shell script sharktank with the following permission settings on the file.

Example:

\$ Is -I sharktank
--wx------ 1 glamble dip 17 Nov 16 17:01 sharktank

True

Feedback

Because the shell must read the commands from the file containing a shell script before it can execute the commands, you must have read permission for the file to execute a shell script.

\$ cat sedq Maybe I can do it. Maybe you can do it. Maybe it will be sunny. Maybe I will get a dog for Christmas. Using sed how can you substitute each Maybe as seen in the lines of the file sedq to Definitely displaying the result to standard output? \$ sed s /Maybe/Definitely/ sedq \$ sed '1s/Maybe/Definitely/' sedq \$ sed 's/Maybe/Definitely/' sedq

Correct!



1.08 / 1.08 pts **Question 19** Given the parent variables defined as follows: \$ apples=red; bananas=yellow Consider the script file child as shown below: \$ cat child #!/bin/bash echo "==>Entering child process<==" echo "==Showing fruit variables in child<==" echo "apples are \$apples and bananas are \$bananas" Will the child script see the values of the apples and bananas variables? (Select True for yes; Select False for no.) O True False

Correct!

\$ apples=red; bananas=yellow

\$ child

- ==>Entering child process<==
- ==Showing fruit variables in child<== apples are and bananas are

No, the child cannot view the values of the parent's non-exported variables.

How could you issue an alias in the bash shell to create a 'nickname' h for the history command? \$ alias h = history \$ set h=history \$ unalias h=history Feedback Use the alias command to activate an alias for an established Llnux command.

Question 21 1.08 / 1.08 pts

	1: \$ fishbowl -bash: fishbowl: command not found 2: \$./fishbowl
	How can a path be made so that the fishbowl script can be executed directly as in line versus having to use the workaround of using a . <i>I</i> in front of the command as in 2:?
	Add the "." directory to the path with the following command:
	\$ PATH=PATH:.
	Enable execute permission on the fishbowl script file.
	Enable execute permission on the parent directory of the fishbowl file.
ct!	Add the "." directory to the path with the following command:
	• \$ PATH=\$PATH:.
	Feedback
	Add the current directory (".") to the path with the following command:
	\$ PATH=\$PATH:.

	Question 22 1.08 / 1.08 pts				
	How could you determine the number of commands in /bin that are really scripts?				
	○ \$ file /bin				
Correct!	\$ file /bin/* grep script wc -l				
	\$ type /bin/* grep script wc -l				

Feedbac	k	
This filte	r will give you the number of commands	s in /bin that are really scripts.
\$ file /bi	n/* grep script wc -l	
8		

Question 23	1.08 / 1.08 pts
Given the following contents of the script file tvset what will be at line 3?	the output of the command
\$ cat tvset #!/bin/bash echo "Turn the tv on or off? " read tv echo "tv is set to \$tv" exit	
1: \$ tv=off; export tv 2: \$./tvset Turn the tv on or off? on tv is set to on 3: \$ echo \$tv	
○ \$tv	
\bigcirc on	
off	
○ tv	

Correct!

The child process is unable to change the value of the parent variable.

\$ cat tvset

#!/bin/bash
echo "Turn the tv on or off? "
read tv
echo "tv is set to \$tv"
exit

1: \$ tv=off; export tv

2: \$./tvset

Turn the tv on or off? on tv is set to on

3: \$ echo \$tv

off

Question 24

0 / 1.08 pts

Given the system process status display below what is the PID and the status of the **bash** command?

\$ ps -I -u glamble

```
FS UID PID PPID C PRI NI ADDR SZ WCHAN TTY TIME CMD 5 S 1452 17536 17527 0 80 0 - 25018 poll_s ? 00:00:00 sshd 0 S 1452 17537 17536 0 80 0 - 28868 wait pts/1 00:00:00 bash 0 S 1452 20343 17537 0 80 0 - 25227 hrtime pts/1 00:00:00 sleep 0 R 1452 20344 17537 0 80 0 - 29141 - pts/1 00:00:00 ps
```

You Answered

PID = 17537; status is running

Correct Answer	O PID = 17537; status is sleeping
	O PID = 17536; status is stopped
	O PID = 17536; status is sleeping
	Feedback
	The bash command PID = 17537; command status is sleeping (S).
	F S UID PID PPID C PRI NI ADDR SZ WCHAN TTY TIME CMD 0 S 1452 17537 17536 0 80 0 -28868 wait pts/1 00:00:00 bash

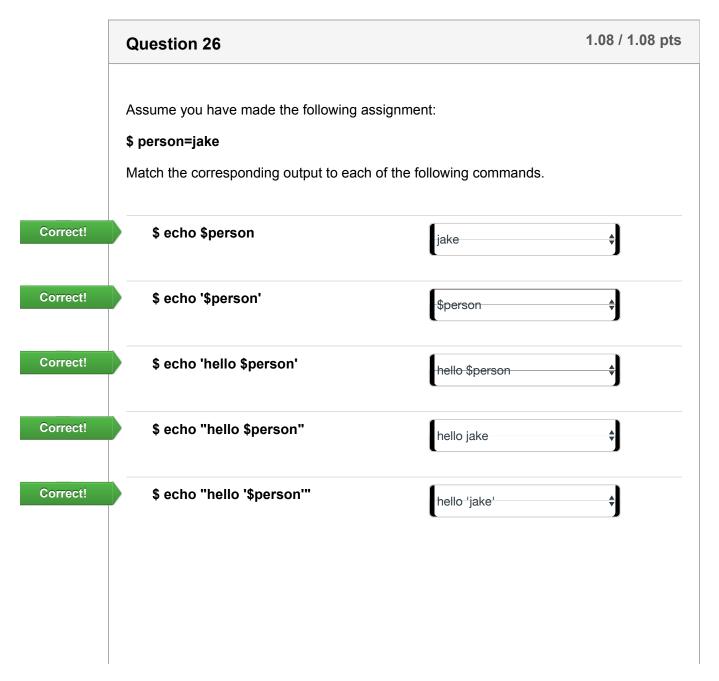
	Question 25	1.08 / 1.08 pts
	What are the numerical permissions for the file cando ? \$ Is -I cando -r-xrw-rwx 1 glamble dip 0 Nov 19 09:43 cando	
	O 273	
Correct!	● 567	
	○ 356	
	O 133	

\$ Is -I cando

-r-xrw-rwx 1 glamble dip 0 Nov 19 09:43 cando

You can decode the numerical permission bits for the file as follows:

d|r-x|rw-|rwx => 101 | 110 | 111 => 567



\$ person=jake

\$ echo \$person jake

\$ echo '\$person' \$person

\$ echo 'hello \$person' hello \$person

\$ echo "hello \$person" hello jake

\$ echo "hello '\$person'" hello 'jake'

Question 27 1.08 / 1.08 pts

Given the directory contents: \$ Is -I total 4 -rw----- 1 glamble dip 0 Feb 18 05:00 testfile -r-x---- 1 glamble dip 108 Feb 18 05:03 testwrite \$ cat testwrite #!/bin/bash if test -w "\$1" then echo "file \$1 is write-able" else echo "cannot write to \$1" fi Considering the testwrite script shown above what will be the result of the test command shown below? \$./testwrite nofile cannot write to nofile (0) file \$1 is write-able file testfile is write-able error - nofile does not exist

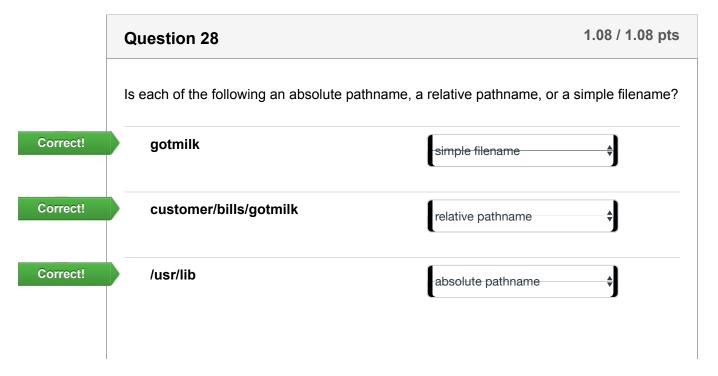
Correct!

```
Feedback
Given the directory contents:

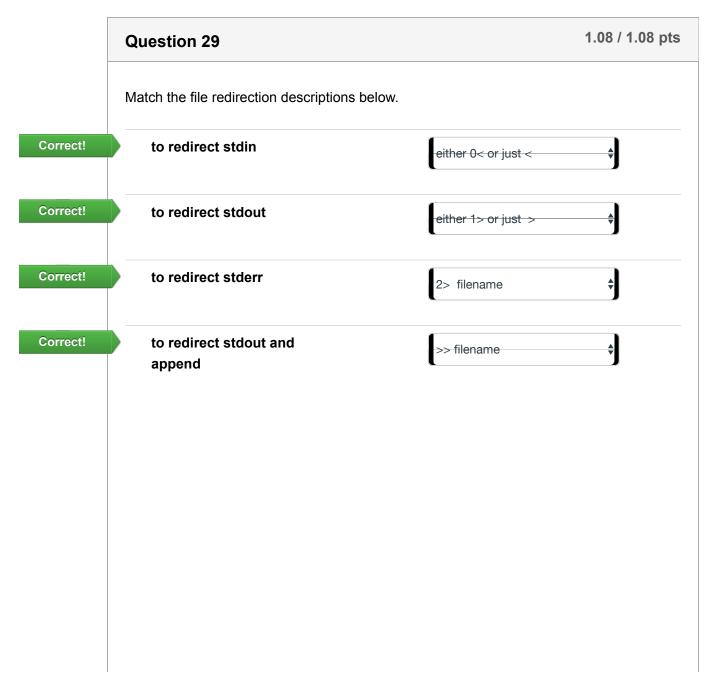
$ Is -I
total 4
-rw----- 1 glamble dip 0 Feb 18 05:00 testfile
-r-x---- 1 glamble dip 108 Feb 18 05:03 testwrite

$ cat testwrite
#!/bin/bash
if test -w "$1"
then
echo "file $1 is write-able"
else
echo "cannot write to $1"
fi

$ ./testwrite nofile
cannot write to nofile
```



The absolute pathname is the location of the argument relative to the **root** directory. All absolute pathnames begin with a slash (*I*). A relative pathname is the directory path relative to the **current working** directory. Relative pathnames do not begin with a slash (*I*).



The input and output of a program can be redirected from and to other files using

<, >, 2> and >>:

0< filename or **<** filename # To redirect **stdin** (either **0<** or just **<**)

1> filename # To redirect **stdou**t (either 1> or just >)

2> filename # To redirect **stderr**

>> filename # To redirect **stdout** and append

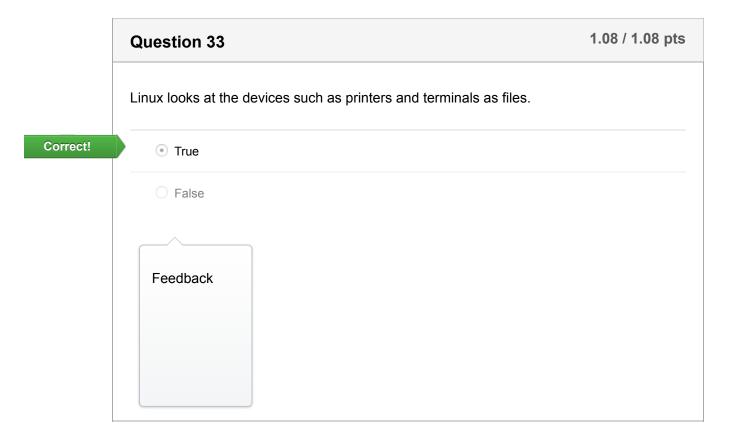
The kernel manages all the hardware dependent functions in the Linux operating system. Correct! True False

Question 31 How can you cause vi to enter Input mode? (Select all that apply.) Correct! ✓ A Correct! ✓ i Correct! ✓ o



Question 32 1.08 / 1.08 pts \$ cat mysteryfile haunted house goblins ghosts bats spiders Given the original mysteryfile as shown above, what is the content of the mysteryfile after the following command is executed? \$ date > mysteryfile haunted house goblins ghosts bats spiders date

	O date
Correct!	output of date command
	o empty file
	Feedback
	The stdout redirection (>) results in the output of the date command overwriting the original file contents of the mysteryfile.



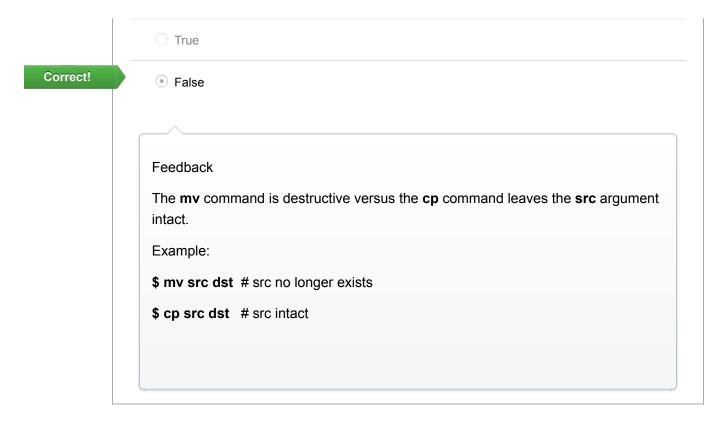
Question 34 1.08 / 1.08 pts

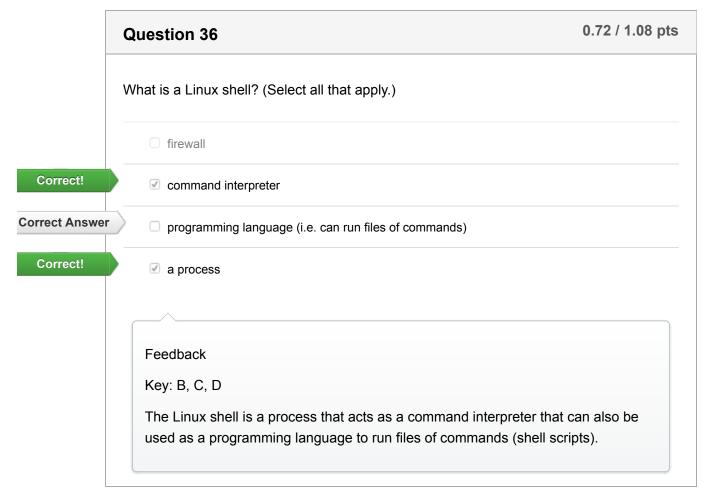
List the commands you can use to perform these operations in the order shown below: (Select all that apply.) 1: Make your home directory the current directory 2: Identify the working directory \$ cd /; pwd Correct! \$ cd; pwd Correct! \$ cd ~; pwd Correct! \$ cd \$HOME; pwd Feedback Key: B, C, D Note: A takes you to the root directory.

Question 35 1.08 / 1.08 pts

The **mv** and **cp** commands are the same. Both copy file(s) from one place to another leaving both the source and destination arguments intact.

Example: cp src dst versus mv src dst





Question 37	1.08 pts
The command to create a directory called cs30b is	
\$ mkdir cs30b	
○ \$ md cs30b	
○ \$ mk cs30b dir	
○ \$ dir cs30b	
Feedback	
Next quarter: hope you'll have the need to create a directory called cs30b!	
	The command to create a directory called cs30b is • \$ mkdir cs30b • \$ md cs30b • \$ mk cs30b dir • \$ dir cs30b

Quiz Score: **36.54** out of 39.96