q1

a

ls -a ~/sample

b

cp /tmp/\*.c data

c

mkdir breakfast

d

gcc -pthreads maths threadcal.c -o doit

gcc -pthread -lm threadcalc.c -o doit;

e

svn checkout

svn update

f

grep “green” colours

g

grep -v tcp /etc/services

h

grep -v usr bin /etc/shells >> tmp/foo

grep -v usr /etc/shells | grep bin >> tmp/foo;

i

grep -c Shaheen friends

j

grep -c “ext4” /etc/fstab > tmp/ext4.count

k

ln -s /usr/bin/sh sh

q2

a

unsigned int bar[5];

b

int\* bar(char\*, char\*);

int (\*bar)(char\*, char\*);

c

volatile int bar;

d

double bar;

e

char\* bar[3];

f

void\* (\*bar)(void\*)

q3

172032

SEGFAULT

98304

UNKNOWN

q4

a

2^18 GiB

b

n = 4\*1024/8 = 512 pages

size4 = 512\*4 = 2MiB

n4 = 1200/2 = 600pages

(1+1+2+600)\*4 = 2416KiB

c

n4 = 2400/2 = 1200pages

(1+1+3+1200)\*4 = 4820KiB

d

2416+2408 = 4824KiB

(1st: 1, 2nd: 2, 3rd: 4, 4th: 1200) - making 4828KiB

e

size2 = 32MiB

n2 = 37.5 =38

156kib

I have: Larger 1st level PT (12b offset, then 512 = 2^9 PTE/Page, so 9 bit for PT level 2, leaving 48 - (12+9) = 27 bits for level 1. `

Thus, 2^27 entries \* 8byte entries for level 1. We still need 600 level 2 entries, so (600 \* 4KiB + 2^27 \* 8B) = 1050976KiB

f

((2^(48-12) \* 8B) / 2^20 = 524288 MiB

q6

a

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  | 255.255.255.0 | 117.15.134.255 | 117.15.134.0/24 |
|  | 255.255.255.128 | 117.15.126.255 | 117.15.126.128/25 |
|  | 255.255.252.0 | 117.26.3.255 | 117.26.0.0/22 |
|  | 255.255.255.248 | 10.2.1.7  **10.2.1.15** | 10.2.1.0/29  **10.2.1.8/29** |

b

CIDR 117.0.0.0/11

b 117.31.255.255

n 255.224.0.0

c

122

q7

a

np = 2048 pointers

(7+3\*2048+3\*2048^2)\*16 = 201425008 KiB

b

(7+3\*2048)\*16 = 98416KiB

d

(7+3\*2048+2\*2048^2 + 2048^3)\*16 = 137573269616KiB

q8

a

chmod g-r doc2

b

chmod g-r data

chmod g-rx, o+rx data

c

3

e

touch docz

ln -s docs docz

q9

a

alice,dave,eve

b

alice,bob,dave,eve

c

eve

d

carol,dave,eve,fred

q10