Duke University
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IKV 97P Jepp644;

XiwxM

Vifigge E2Wmq q srw* [2RiepWmq q srw
Q mgleipV2Kywxejwsr MM

Reqi,tpiewitvmrx- Answer Key

Mr oiitmrk {mxl xli Gsq q yrmx} Wxerhevh0Mlezi rimxliv tvszmhih rsv vigimzih er} ewwmwxergi sr xlmw xiwx2 Myrhivwxerh mj mx mw pexiv hixivq mrih xlex Mkezi sv vigimzih ewwmwxergi0M{mppfi fvsyklx fijsvi xli Yrhivkvehyexi Nyhmgmep Fsevh erh0mjjsyrh viwtsrwmfpi jsv egehiq mg hmwlsriwx} sv egehiq mg gsrxiq tx0jemp xli gpeww2 Mepws yrhiwxerh xlex Meq rsx epps{ih xs wtieo xs er}sri i|gitx xli mrwxvygxsv efsyx er} ewtigx sjxlmw xiwx yrxmp xli mrwxvygxsv errsyrgiw mx mw epps{ih2 Myrhivwxerh mj mx mw pexiv hixivq mrih xlex Mhmh wtieo xs ersxliv tiwsr efsyx xli xiwx fijsvi xli mrwxvygxsv wemh mx{ewepps{ih0M{mppfi fvsyklx fijsvi xli Yrhivkvehyexi Nyhmgmep Fsevh erh0mjjsyrh viwtsrwmfpi jsv egehiq mg hmwlsriwx} sv egehiq mg gsrxiq tx0jemp xli gpeww2

Wmkrexyvi> N. Kog

Tvsfpiq M>_< txw2a Xli [liipw sr xli Fyw

Jmpsyx xli jsppss{mrk xefpi {mxl xli viwypxw sj xli Q EXPEF gsq q erhw kmzir>

	gimp,|-	floor(x)	fix(x)	vsyrh,|-
162<	-2	-3	-2	-3
1526	-1	-2	-1	-1
72;	4	3	3	4
826	5	4	4	4

Tvsfpiq MM>_; txw2a Fewmg Q exvmgiw

,e- [vmxi e sri1pmri Q EXPEF gsq q erh xs tvshygi e 8 f} : evve} sjverhsq mrxikiww izirp} hmwxvmfyxih fix{iir 19 erh 59 erh gepp mx Q}Ryqfivw2

My Numbers = -5 + floor(21 * rand(4,6))

,f- [vmxi syx xli q exvm| gviexih {mxl xli Q EXPEF gsq q erh>

```
E A _5>7><? sriw,6-0 _16 18a+a
```

[1 4 7] [1 1 1] [-2 -4] => [1 4 7; 1 1 -2; 1 1 -4]

Reqi,tpiewitvmrx->
Gsqqyrmx} Wxerhevh,tvmrx EGTYF MH->

Tvsfpiq MMM>_66 txw2a Vsgoix%

Xlmw tvsfpiq gsqiwjvsq Gletve0Tvsfpiq 72580t2;<2 Xlitvsfpiq kmziwe tswwmfpiiuyexmsr jsv xli zipsgmx} sje vsgoix ew>

$$z,x-A \quad \begin{cases} 55x^{6} - 9x & 4 \le x \le 54 \\ 5544 - 9x & 54 @ x \le 64 \\ 94x/6,x-64^{-6} & 64 @ x \le 74 \\ 5964i^{-4\times6,x-74-} & xB\ 74 \\ 4 & sxliv\{mwi \end{cases}$$

,e- [vmxi e jyrgxmsr xlexxeoiwe zigxsv sjxzepyiwewer mrtyxerh ywiwe pskmgepqewo xs gepgypexi erh syxtyx e zigxsv sjz zepyiw2 Xli jyrgxmsr qywx ywi pskmgepqewow2 Mjer} sjxli xmqiwtewwih xs xli jyrgxmsr evi piww xler ~ivs0}syv jyrgxmsr wlsyph mwyi e{evrmrk>

```
[evrmrk> Vsgoix mw rsx peyrglih yrxmp xmqi 4%
```

,f- [vmxi e wgvmtx xlexkirivexiwe zigxsv sj644 izirp}1wtegih xmqiwjvsq 19 xs 940 ywiw xli jyrgxmsr }sy{vsxi efszi xs gepgypexi xli gsvviwtsrhmrk zipsgmxmiw0erh xlir qeoiwe tpsx sjxli zipsgmx} ewe jyrgxmsr sjxmqi ywmrk e fpego wsph pmri2] sy hs rsx riih xs pefipsv xmqi xli tpsx2
Xlir ewo xli ywiv{lixliv xli tvskveq wlsyph wezi xli tpsx2 Mjxli ywiv erw{iw{mxl xli {svh+}iw+xli tpsx should be saved into an encapsulated PostScript file called Q}Tpsx2itw sxliv{mwi xli tpsx wlsyph rsx fi wezih2

Jyrgxmsr>

```
Function v= Rocket(t)
if   sum(t<0) > 0
     warning('Rocket is not launched until time 0!')
end
v=(11*t.^2-5*t).*(0<=t & t<=10)+...
   (1100-5*t).*(10<t & t<=20)+...
   (50*t+2*(t-20).^2).*(20<t & t<=30)+...
    (1520*exp(-.2*(t-30))).*(t>30);
```

Wgvmtx>

```
t=linspace(-5,50,200);
v=Rocket(t);
plot(t,v,'k-')
PlotQ=input('Save Plot (yes/no): ','s')
if strcmp(PlotQ,'yes')
    print -deps MyPlot
end
```

Reqi,tpiewitvmrx->
Gsqqyrmx} Wxerhevh,tvmrxEGTYF MH->

Tvsfpiq MZ>_5< txw2aQexvm| GviexmsrerhQermtypexmsr

Jsviegl sjxli jsps{mrk wigxmsrw0wls{ {lexxliqexvmgiwE0F0erhG{mppssopmoiexxliirh sjxliwrmttixsjgshi2

,e-

```
BBEA_4>9a
BBFAE2b7
BBGAF,507-
```

A=[0 1 2 3 4 5]
B=[0 1 8 27 64 125]
C=[8]

,f-

```
BBEA:29
BBFAi}i,607-
BBGAE.F
```

A=6.5
B=[1 0 0 / 0 1 0] C=[6.5 0 0 / 0 6.5 0]

,g-

```
BBEA_528062:?1826042<a
BBFAgimp,E-
BBGAE2.F
```

A=[1.4 2.6 / -4.2 0.8] B=[2 3 / -4 1] C=[2.8 7.8 / 16.8 0.8]

,h-

```
BBEApmrwtegi,1tm0tm09- ) }sy ger {vmxi xlmw ywmrk xli tm w}qfsp
BBFAE,5>7>irh-
BBGAgsw,F-
```

A=[-π -π/2 0 π/2 π]
B=[-π π/2]
C=[-1 0] or [cos(-π) cos(π/2)]

,i-

```
BBEA18>6>5?
BBFA_E+ E+ E+a
BBGAE/F,60>-
```

A=[-4 -2 0]
B=[-4 -4 -4 / -2 -2 -2 / 0 0 0] C=[-6 -4 -2]

,j-

```
EA_5 6? 17 8a?
FA_18 :a
GAefw,E2._F?Fa-
```

A=[1 2 / -3 4] B=[-4 6]
C=abs([1 2 / -3 4].*[-4 6 / -4 6])
C=abs([-4 12 / 12 24])
C=[4 12 / 12 24]

Req i ,tpiewi tvmrx->
Gsq q yrmx} Wxerhevh ,tvmrx EGTYF MH ->

Tvsfpiq Z > _64 txw2a M3S Jyrgxmsrw

[vmxi xli Q EXPEF wgvmtxxlex{ mppti vjsvq xli jspps{ mrk xewowxs tvshygi e zevmefpi1wm-i q ypxmtpmgexmsr xefpi2 Jmwx0 xs kix xli ryq fiv sjvs{ wmr xli xefpi0ewo xli ywiv xs mrtyx er mrxikiv fix{ iir 5 erh 540mrgpywmzip}0erh zepmhexi xli ryq fiv ,m2i2 oiit ewomrk yrxmp}sy evi wyvi xli ywiv lew irxivih er mrxikiv erh xlex mrxikiv mw mr xli hsq emr sj 5 xs 54-2 Wigsrh0xs kix xli ryq fiv sj gspyq rwmr xli xefpi0ewo xli ywiv xs mrtyx er mrxikiv fix{ iir 5 erh :0mrgpywmzip}0 erh zepmhexi xli ryq fiv ,m2i2 oiit ewomrk yrxmp}sy evi wyvi xli ywiv lew irxivih er mrxikiv erh xlex mrxikiv mw mr xli hsq emr sj 5 xs :-2 X lir ywi xlswi ryq fiw mr gsrnyrgxmsr { mxl e hsyfpi jsv psst xs tvmrx syx e q ypxmtpmgexmsr xefpi2] sy { mp{ erx xs viwivzi irsykl wtegi wygl xlex xli ryq fiw epppri yt tvstivp} erh }sy { mp{ erx xs q eoi wyvi xli ryq fiw evi tvmrxih { mxlsyx er} higmq ep tsmrxw2] sy hs rsx riih xs pefip xli vs{ w sv gspyq rw0ywx tvmrx xli ‘q iex& sj xli xefpi2 E w i|eq tpiw0xli syxtyx fips{ vitviwirxw { lex q mklx lettir mj xli ywiv irxivih 7 jsv xli vs{ werh 9 jsv xli gspyq rwejxiv q iwwmrk yt iegl e gsytpi xmq iw2 R sxi xlex e d+vitviwirxw e wtegi>

```
' sj Vs{w ,fix{iir 5 erh 54-> 4
Rs% ' sj Vs{w ,FIXIIR 5 erh 54-> 55
Rs% ' sj Vs{w ,FIXIIR 5 erh 54-> 7
' sj Gspyqrw ,fix{iir 5 erh :-> 4
Rs% ' sj Gspyqrw ,FIXIIR 5 erh :-> ;
Rs% ' sj Gspyqrw ,FIXIIR 5 erh :-> 9
cc5cc6cc7cc8cc9
cc6cc8cc:cc<c54
cc7cc:cc=c56c59
```

{ lmpi e ywiv mq q ihmexip} irxivmrk : jsv xli ryq fiv sj vs{ werh 7 jsv xli ryq fiv sj gspyq rw { syph kix>

```
' sj Vs{w ,fix{iir 5 erh 54-> :
' sj Gspyqrw ,fix{iir 5 erh :-> 7
cc5cc6cc7
cc6cc8cc:
cc7cc:cc=
cc8cc<c56
cc9c54c59
cc:c56c5<
```

```
NumRows = input('# of Rows CbetWeen 1 and 10): ');
while (NumRows <1) | (NumRows >10) | (fix(NumRows) ~= NumRows)
    NumRows = input('No! #of Rows CBETWEEN 1 and 10): ');
end
NumCols = input('# of Columns CbetWeen 1 and 6 ): ');
while (NumCols <1) | (NumCols >6) | (fix(NumCols) ~= NumCols )
    NumCols = input('No! #of Columns CBETWEEN 1 and 6 ): ');
end
For row = 1: NumRows
    For col = 1: NumCols
        Fprintf('%3.0f', row * col)
    end
    fprintf('\n'),
end
```

Reqi,tpiewitvmrx->
Gsqqyrmx} Wxerhevh,tvmrx EGTYF MH->

Tvsfpiq Z M>_59 txw2a Q exvm| Jyrgxmsrw

Ewwyq mrk xli jsgps{ mrk Q EX PE F gsqq erhw lezi epvieh} vyr>

```
XliRyqfivw A _86     69      7     89     8;?222
              7<     66      :     55     6<?222
              58     64     5:     86     77?222
              87     66     89     85     8<a?
QsviRyqfivw A verh,:0<-
```

,e- Wls{ xli viwypx sj>qe|,XliRyqfivw-

maximum of each column;

[43 25 45 45 48]

,f- Wls{ xli viwypx sj>qmr,XliRyqfivw+-

minimum of each column of the transpose;

[3 6 14 22]

,g- Wls{ xli viwypx sj>qmr,qe|,XliRyqfivw--

minimum of the maximum of each column;

[25]

,h- [vmxi xli sri1pmri gsqq erh mr Q EX PE F xs kmzi }sy xli szivepp ezivekisj QsviRyqfivw

mean(mean(MoreNumbers))

or sum(sum(MoreNumbers))/numel(MoreNumbers)

,i- [vmxi xli sri1pmri gsqq erh mr Q EX PE F xs kmzi }sy xli wyq sjxli wuyeviwsjepp sjxli ipiq irxwmr QsviRyqfivw

sum(sum(MoreNumbers.^2))

Reqi,tpiewi tvmrx->
Gsqqyrmx} Wxerhevh,tvmrx EGTYF MH->

Tvsfpiq Z MM>_54 txw2a Y R M\ erh PX_I\ Tvsgiwwmrk

Ewwyq mrk }sy lezi nywx psk kih mr erh stirih e xivq mrep{ mrhs{ 0kmzi xli tvstiv Y R M\ gsqq erhw riihih xs>

,e- Glerki mrxs }syv IKV97 hmvigxsv}

cd EGR53

,f- Gviexi erh xlir glerki mrxs e vigX hmvigxsv}

mkdir recT
cd recT

,g- Copy all files ending in 2xi| jvsq ywiv {rw+w0tyfpmg3IKV973vigX3 hmvigxsv} mrxs }syv gyvwirx hmvigxsv}

cp ~wns/public/EGR53/recT/*.tex .

,h- Assuming there is now a file called I|eqtpi2xi| mr }syv vigX hmvigxsv}0vireq i mx Uym~Jmpi2xi|

mv Example.tex QuizFile.tex

,i- Assuming you have renamed the file properly, process Uym~Jmpi2xi| xs tvshygi e 2hzm file

latex QuizFile.tex

,j- Tvizmi{ xli 2hzm file which results

kdvi QuizFile.dvi {or xdvi}

,k- Create a PostScript file named Tvmrxefpi2tw jvsq xli 2hzm file

dvips QuizFile.dvi -o Printable.ps

,l- Tvizmi{ xli 2tw file

kghostview Printable.ps {or ggv}