

```

%{
Sebastian Venegas
Section 9
purpose: Calculate damage pretange for test problem
%}

    % couple equations fixed, but OVERALL: very good

clc;
clear;
close all;

% INTRO MISSING.

%number of peices
numpiece=2;
while numpiece<=3 || numpiece~=floor(numpiece)
    numpiece=input('How many pieces does your shield have? (x>3): '); %**
end

%acceptable damage percent
accdmg=9;
while accdmg<=.10 || accdmg>=.70
    accdmg=input('How much damage percentage are you willing to accept?␣
(10<=percentage<=70): ')/100;
end

%forloop for each sheild erea
database=zeros(1,numpiece); %gets rid of orange underline. I showed Sebastien during␣
office hours.
damagedata=zeros(1,numpiece); %of course not required.
for k= 1:numpiece
    %What is the surface are in cm^2 of the sheild peice #?:
    fprintf('\nWhat is the surface are in cm^2 of the sheild peice #d? (15<=surface␣
area<=70):',k)
    surfarea=input('');
    database(k)=surfarea;

    %damage percentange
    dmgpercent=(rand*90+10)/100; %**
    damagedata(k)=surfarea*dmgpercent;

    %display
    fprintf('Shield %.1f%% destroyed! (%.1f cm^2)',dmgpercent*100,damagedata(k));
end

%sum of vectors
totsurfarea=sum(database);
totdmgsurfarea=sum(damagedata);

%overall damage percentage
overalldmg=totdmgsurfarea/totsurfarea*100;

if overalldmg>=accdmg %**
    fprintf('\n\percentage of sheild destroyed %.3f%%\nThis seems to work, landing␣
should be safe\n\n',overalldmg)
else
    fprintf('\n\percentage of sheild destroyed %.3f%%Oh no, sheild destroyed, mission␣
failed (*you are fired)\n\n',overalldmg);
end

bar([damagedata;database]','stacked'); %**
xlabel ('Heat sheild number');
ylabel ('Surface area in cm^3');

```

```
title ('Damage ustained by each shield');
legend ('Damaged Portion', 'Total surface area'); %**

%{
testing

%**

How many pieces does your shield have? (x>3): 2
How many pieces does your shield have? (x>3): 4.4
How many pieces does your shield have? (x>3): 3
How many pieces does your shield have? (x>3): 4
How much damage percentage are you willing to accept? (10<=percentage<=70): 9
How much damage percentage are you willing to accept? (10<=percentage<=70): 99
How much damage percentage are you willing to accept? (10<=percentage<=70): 43.3

What is the surface are in cm^2 of the sheild peice #1? (15<=surface area<=70):43
Shield 78.9% destoroyed! (33.9 cm^2)
What is the surface are in cm^2 of the sheild peice #2? (15<=surface area<=70):54.3
Shield 81.6% destoroyed! (44.3 cm^2)
What is the surface are in cm^2 of the sheild peice #3? (15<=surface area<=70):65
Shield 26.8% destoroyed! (17.4 cm^2)
What is the surface are in cm^2 of the sheild peice #4? (15<=surface area<=70):100
Shield 54.1% destoroyed! (54.1 cm^2)

percentage of sheild destroyed 57.083%
This seems to work, landing should be safe

%}
```