Editor - C:\Users\Rochelle Abalus\Documents\2ECEA\MAtlab\Final\Prob4.m

prob1.m | Prob2.m | Prob3.m | Prob4.m | Prob5.m

```
1
2 -   height=input('What is the initial height of the projectile above the ground in meters? ');
3 -   velocity=input('What is the magnitude of the velocity in m/s? ');
4 -   theta=input('What is the angle in degrees with respect to the +axis at which the projectile is fired? ');
5 -   accelerationx=input('What is the the x-component of the acceleration? ');
6 -   accelerationy=input('What is the the y-component of the acceleration? ');
7
8 -    if accelerationy==0
9 -         error('If the vertical acceleration is zero, then there would be no free fall.)')
10 -   end
11
12 -   time=(-velocity*sind(theta)-sqrt(velocity^2*(sind(theta)^2)-2*height*accelerationy))/accelerationy;
13 -   t=0:.001:time;
14 -  x=velocity.*cosd(theta).*t + (0.5).*accelerationx.*(t.^2);
15 -  y=velocity.*sind(theta).*t + (0.5).*accelerationy.*(t.^2)+ height;
16
17 -  plot(x,y,'linewidth',2)
18 -  grid on
19 -  xlabel 'Range'; ylabel 'Height '; title 'Projectile Motion'
20
```

Command Window

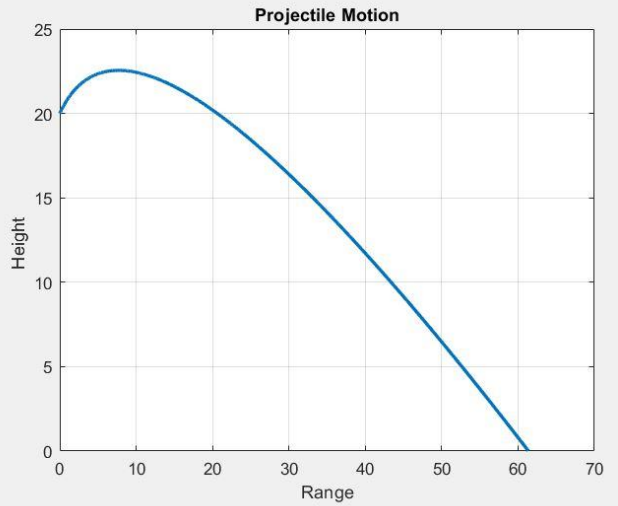
```
>> Prob4
What is the initial height of the projectile above the ground in meters? 20
What is the magnitude of the velocity in m/s? 10
What is the angle in degrees with respect to the +axis at which the projectile is fired? 45
What is the the x-component of the acceleration? 10
What is the the y-component of the acceleration? -9.8
fx >>
```

Workspace

Name	Value
accelerationx	10
accelerationy	-9.8000
b	0
Center	1x2 sym

Figure 1

File Edit View Insert Tools Desktop Window Help



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Command Window

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>> Prob4
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What is the magnitude of the velocity in m/s? 10
What is the angle in degrees with respect to the +axis at which the projectile is fired? 45
What is the the x-component of the acceleration? 10
What is the the y-component of the acceleration? 0
Error using Prob4 (line 9)
If the vertical acceleration is zero, then there would be no free fall.)

fx >>
```