CPSC131:Basic Excel HW -20 pts

Q1-

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| |  | | --- | | A Ferris wheel with a radius of 25 meters makes one rotation every 36 seconds. At the bottom of the ride, the passenger is 1 meter above the ground.  a) Let h be the height of the passenger above ground, and A is angle shown in the figure. Then the equation of height (h) as a function of time is h(t)= 25\*cos (A) +26, where A = 2\*pi\*t/36 if h = 51 meter at t = 0  b) Use EXCEL to find the height h after (0, 5 ,10 ,15 ,20 ,25, 30 seconds). Use Goal seek to find the time when the passenger reach a height =22m. | |

Q2

As part of a training exercise, you are shooting grenades at a target 475 m away. The trajectory of a projectile is given by the following function:

Where g= -9.81m/, y is the vertical distance of the projectile (m) and x is the horizontal distance from the target (m). The projectile is fired with initial velocity and at angle from the horizontal.

Create an Excel spreadsheet to implement this equation. If you first attempt a shot with initial velocity m/s and at angle, Calculate and plot the path of the grenade from x=0 to 400m, in 20 m increments. Assume the initial height of the grenade is the same height of the target. Appropriately label, title and annotate your plot. You must use absolute and relative references. The plot should update automatically when the angle is changed.

Answer the following questions using the spreadsheet you have created. Clearly state your answer in Excel worksheet (use goal seek).

1. On your first attempt given above, you undershoot the target. Keeping the same initial velocity, what does angle need to be in order for the projectile to hit the target at x=475m.
2. An observation balloon is raised 3 m above the target’s location as a new target. What is the new value need to be in order for the projectile to hit the balloon at x=475m.

Submit your spreadsheet to the Basic EXCEL drop box in D2L. Make sure to place your name and assignment name at the top of the spreadsheet. Each question should be on a separate spreadsheet