

# PITCHES

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## PROBLEM1:

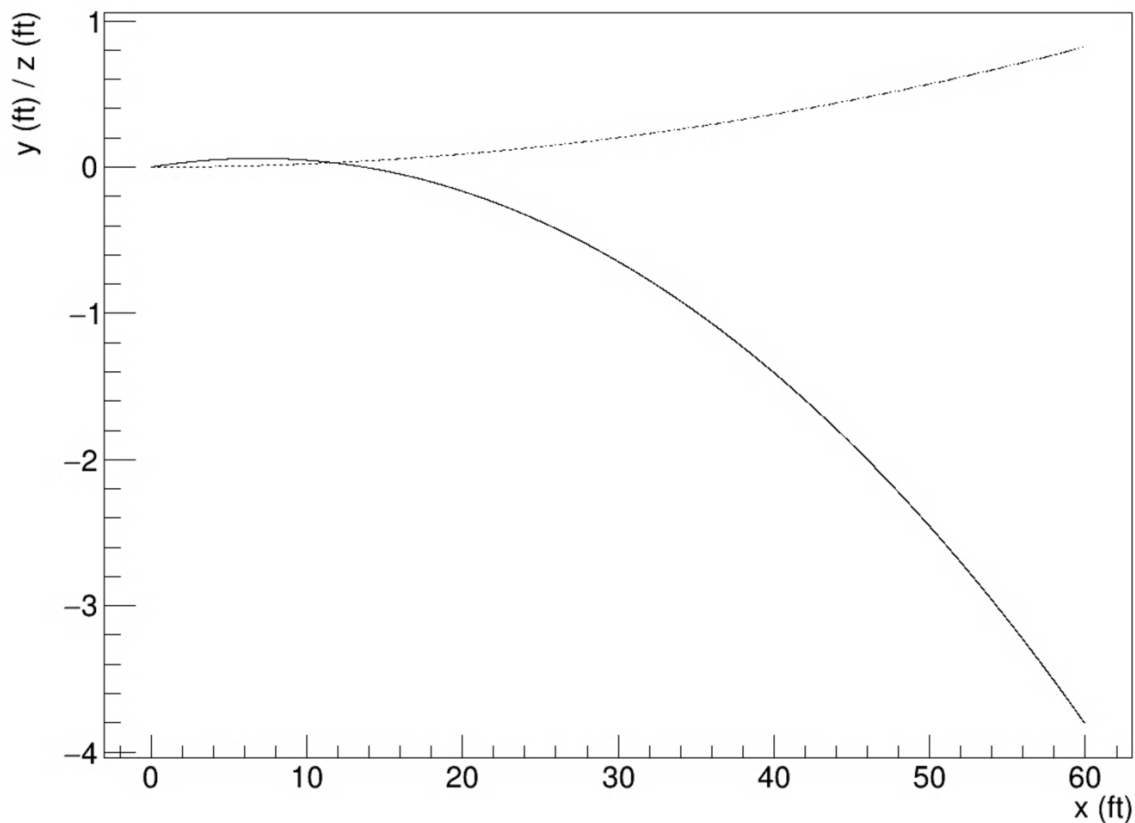
Used similar technique as in RKnDemp.cpp & RKnStep.cpp to solve this problem. The question is how fast must a baseball be thrown to reach home plate within the strike zone. We changed the velocity in small steps, giving conditions whether the range & height is reached.

```
*****  
(xend,z0,theta0) = (18.500000,1.400000,1.000000)  
v_pitch = 45.010000 m/s  
*****
```

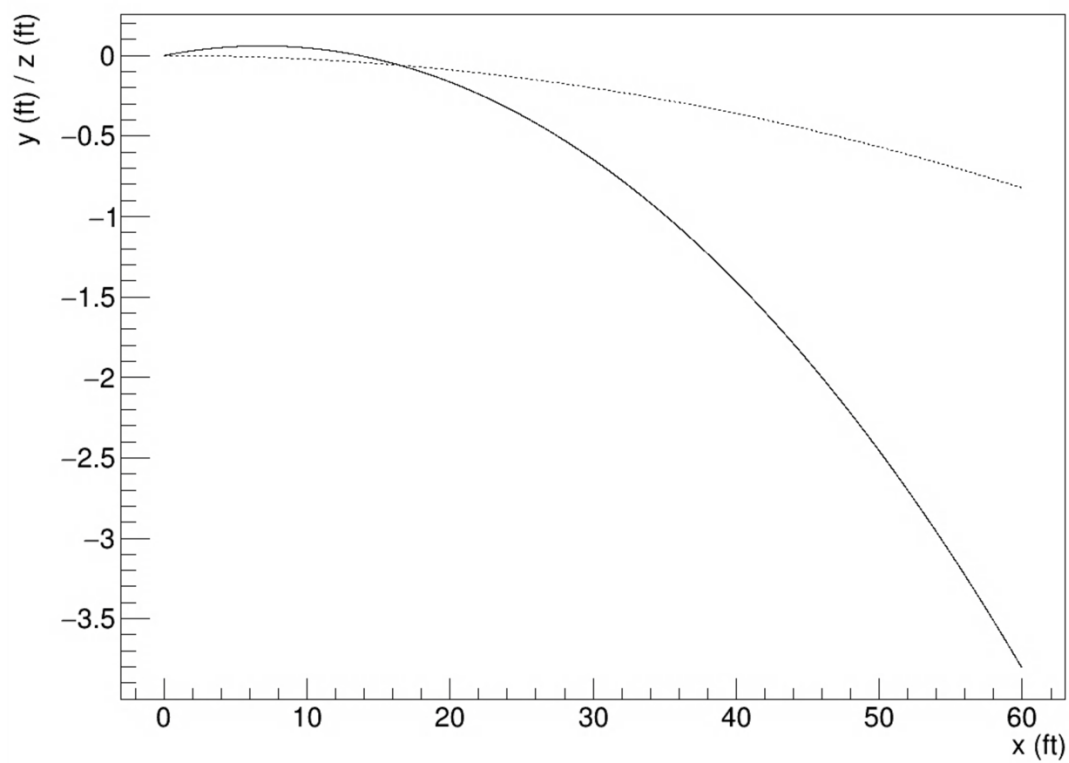
## PROBLEM2:

Here we need to generate plots in the Fitzpatrick book for different types of balls.

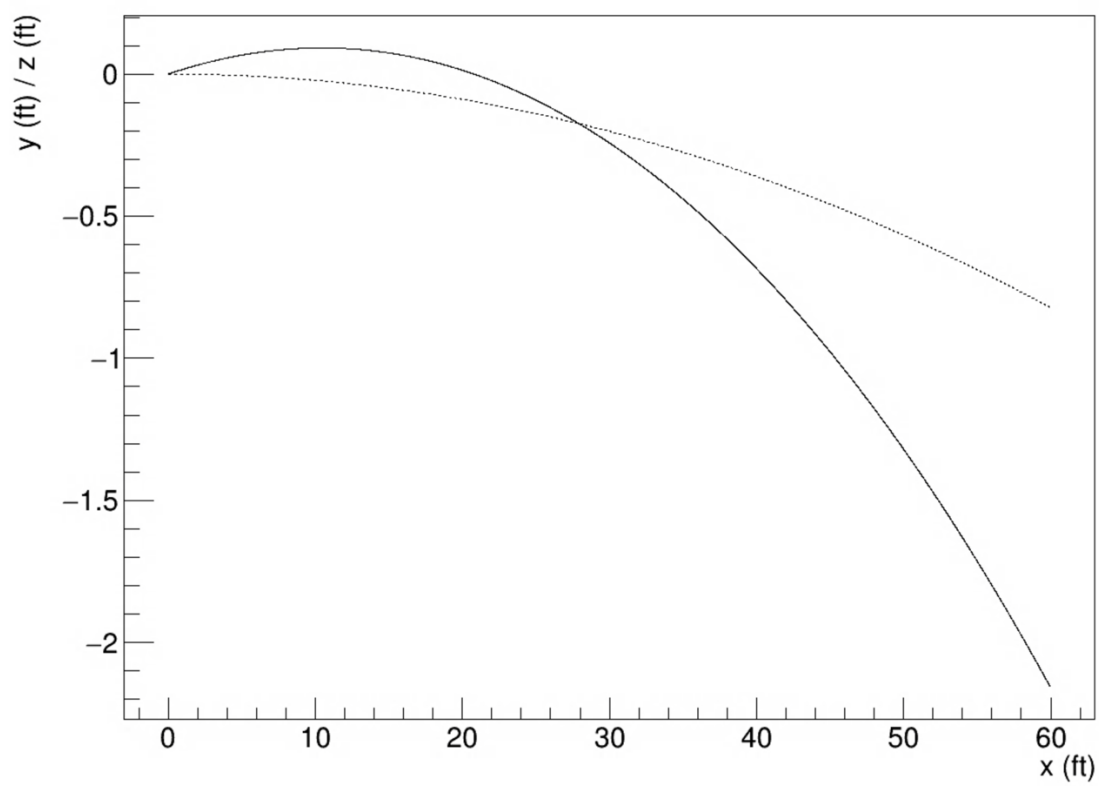
### Curveball



Screwball



Fastball



## Slider

