

PROJECTILES

Unit 9 with some 4 & 5, Dr. John P. Cise, Professor of Physics,

Austin Com. College, Austin Texas, USA jpcise@austincc.edu & New York Times, July 1, 2018 by The Associated Press

For the Mets, a Loss to the Marlins Caps a Miserable June



The Marlins' Brian Anderson connected for a two-run homer in the sixth inning against the Mets on Saturday.

INTRODUCTION: This homer (hit at a 45 degree angle) went $325(X)$ feet over a 10 ft.(Y) high wall. Horizontal components of velocity are constant assuming friction is minimal = 0. Solving projectile solutions it is essential to use kinematic equations. The number of unknowns requires the same number of equations. In the case of projectiles the use of the kinematic concepts.

QUESTIONS: (a) Set up the two equations which will allow you to solve for velocity of ball off bat(V in ft./s. & mph) and time of flight(t), (b) Find velocity ball is hit and the time of flight?

HINTS: $X = V_{\text{HORIZONTAL}} t$, $y = V_{\text{VERTICAL}} t + \frac{1}{2} a t^2$, solving for two unknowns requires the set up of two equations from kinematic concepts available. 60 mph = 88 ft./s.

ANSWERS: (a) _____, (b) $t = 4.437$ s., $V = 72.11$ ft./s. or ~ 49.94 mph, quite reasonable.

The Marlins overtook the Mets on the scoreboard and in the standings on Saturday. And for the second game in a row, Miami beat the Mets with a rookie pitcher making his first major league start. Brian Anderson hit a two-run homer off Jacob deGrom and the Marlins climbed out of last place in the National League East by rallying past the reeling Mets, 5-2. "We're not in last place? Awesome," said J.T. Riddle, whose scratch R.B.I. single put Miami ahead to stay. The Mets (32-48) lost for the 10th time in 11 games and fell into last place for the first time this year. They finished 5-21 this month for the worst June in franchise history, and they have plummeted from 10 games over .500 to 15 under at an earlier date than any team in major league history, according to the Elias Sports Bureau. "It was not the goal when we came in," deGrom said. "This is the complete opposite. Nobody's happy with that." The rebuilding Marlins (34-50) went 14-14 in June, their best month this season. They seem to get better as they get younger. Pablo Lopez (1-0) allowed two runs in six innings in his major league debut Saturday, less than 24 hours after Sandy Alcantara won his first big league start. Both are 22. The last time two pitchers on the same National League team earned wins in their first career starts over consecutive days was in 1967 when Gary Nolan and Mel Queen did so for the Reds, according to Stats LLC. DeGrom took a 2-0 lead into the sixth, but Anderson's fifth homer of the year tied it. Riddle beat out a dribbler to the first baseman for a two-out R.B.I. hit that put Miami ahead. "I thought that swinging bunt was foul," deGrom said. "I should have gone over there and got it." Another fielding lapse cost the Mets in the seventh. J.T. Realmuto hit a two-run double after an error by shortstop Amed Rosario prolonged the inning. Drew Steckenrider pitched a perfect eighth, and Kyle Barraclough earned his eighth save with a 1-2-3 ninth. Steckenrider has thrown $15\frac{2}{3}$ consecutive scoreless innings, and Barraclough has thrown $20\frac{2}{3}$. They are two more reasons the Marlins are on the rise. "We're gaining some type of identity as to what kind of games we need to play to win," Manager Don Mattingly said. "We're not going to out-slug anybody. We're going to have to pitch and play defense and scratch for runs." The Mets' runs came on solo homers against Lopez. Jose Bautista hit his fifth of the year, his third with the Mets. Todd Frazier added his ninth. DeGrom (5-4), who departed after six innings trailing 3-2, fell to 1-4 in his past five starts despite allowing only 15 runs. His earned run average, the lowest in the majors coming into the game, rose to 1.84. "I am definitely frustrated," he said. "I'm tired of losing." Mets pinch-hitter Jose Reyes appeared not to run out a grounder to short in the seventh. "It looked like that to us, too," Callaway said. "I went to talk to Rey-Rey, and he said he felt something out of the box and he was scared he was going to pull something. He kind of pulled up halfway. I thought that maybe he was frustrated, but he felt something coming out of the box."