

# [Vectors though i find in unimportant enough to](https://assignbuster.com/vectors-though-i-find-in-unimportant-enough-to/)

Vectors and FootballIntroduction            Cam Newtonsnaps the ball. He drops back 10 yards to survey the field. He feels the theright end rushing to his blind side and rolls out to his right. He sees hisnumber one target Devin Funchess start to make a post route at the 40 yardline, cutting to the middle of the field from the quarterback’s left. Camthrows a tight spiral to Funchess for a 30 yard gain. Throughout this sequencethese players unknowingly put vectors to use.

In the rollout to the right byCam Newton, the post route by Devin Funchess, and the pass from Cam’s arm toFunchess’ hands. In nearly every facet of the play, vectors were evidentthroughout.             Being anathlete for all my life, I gravitated towards many sports. One of whichhowever, was not American football. Now I can not get myself off the couchduring any football game.

I love watching and learning more about the sportevery week. I watch every snap and wonder what all goes into making a 20 yardgain possible.             I will lookat game film of Cam Newton and the Carolina Panthers and look to calculate thevectors within some of Cam Newton’s passes. To do this, I will need to find themagnitude of both the quarterback, the receiver, as well as the ball. Thedistance the ball travelled, the distance the receiver travelled, the drop backby the quarterback, and if applicable the distance travelled by thequarterback. Another thing one could consider, though I find in unimportantenough to exclude it will be the resistance of air. In all of my diagrams Iwill be presenting the issue as if there is no wind, but the presence of air isstill there and could in some way affect the magnitude and direction of theball during ballistic flight. I will do multiple diagrams, each getting morecomplicated than the last.

Though noplayer thinks about how vectors are involved in what they are currently tryingto do, it is still interesting to see how vectors are constantly used. With thedirection of the ball and players, vectors are inevitable when it comes tofootball. PassesChosen            I have chosenthree passes to assess and calculate vectors for; all of which are from CamNewton, quarterback for the Carolina Panthers. The first is a pass from 2015 inwhich Funchess runs a fade route for a 35 yard gain. The specifics of the playcan be seen in the charts below.

A drop back is the space in which thequarterback backs up from where he hikes the ball,  fade route is when a receiver runs at aslight angle towards the sideline of the field, and total distance of pass isthe sum of the distance behind the line of scrimmage at the spot of the throwby the quarterback added to the spot of the catch by the receiver.              QB Drop Back (Steps) Drop Back (time) Drop Back (Distance in Yards) Beginning of Pass Spot of Catch Total Distance Behind Line of Scrimmage (Yards) Cam Newton 8 1. 93 3 Own 42 Opponent 17 8    Receiver Start of Route Start of Fade Spot of Catch Distance Travelled (Yards) Time of route (Seconds)   Funchess 50 45 17 33 4. 71         Time of Ballistic Flight (Seconds) Distance Travelled (Yards)   Football 2. 33 46    The second pass is a recent one from the Packers game fromweek 15 of the 2017 nfl season.

Greg Olsen runs up as a tight end receiver andruns a fly route, Cam scrambles back and launches a pass off his back foot tohim just outside the end zone and Olsen walks in for the touchdown.   QB Drop Back (Steps) Drop Back (time) Drop Back (Distance in Yards) Beginning of Pass Spot of Catch Total Distance Behind Line of Scrimmage (Yards) Cam Newton 6 1. 51 4 41 3 9    Receiver Start of Route Start of Fade Spot of Catch Distance Travelled (Yards) Time of route (Seconds) Greg Olsen 30 n/a 3 27 4. 23      Time of Ballistic Flight (Seconds) Distance Travelled (Yards) Ball 2.

31 38  My third choice of Cam Newton passes comes from 2015 again, this time against the Green Bay Packers. Cam completes a pass from the borderof his own end zone  to Jericho Cotcherywho runs a fly route for a 19 yard gain.   QB Drop Back (Steps) Drop Back (time) Drop Back (Distance in Yards) Beginning of Pass Spot of Catch Total Distance Behind Line of Scrimmage (Yards) Cam Newton 6 1. 20 4 1 26 9    Receiver Start of Route Start of Fade Spot of Catch Distance Travelled (Yards) Time of route (Seconds) Jericho Cotchery 8 n/a 26 18 3. 25        Time of Ballistic Flight (Seconds) Distance Travelled (Yards) Ball 0. 96 26  Objective            With thedata presented, I will look to calculate the vectors involved in all threepasses presented and observe the difference between the routes. It’s importantto realize I will not be calculating the the yards the same way in which theNFL does.

The NFL calculates yards by total yards gained after the line ofscrimmage, I will be calculating total distance the ball is thrown from thespot of the throw and how that is incorporated into the vector. With the data Ihope to find all the aspects of a vector… eventually.             WorksCitedhttps://www. nsf. gov/news/special\_reports/football/vectors. jsphttps://ed. ted. com/lessons/football-physics-scalars-and-vectors-michelle-buchanan