

The Dot System

Part II

Introduction

In Parts I, we discussed the basic mathematical concepts behind The Dot System. In part II, we will learn how to apply these concepts to the football field so that we can learn our 2016 production. As with Parts I, the information in this packet must be mastered by every performer.

Applying Basic Mathematical Concepts to the Football Field

Before we apply the mathematical concepts to the football field, we must first understand the design of the basic football field as well as a few key terms.

The Basic Football Field:

Length = 300 ft

Width = 160 ft

Yard Lines = every 15 ft, spanning the entire width of the field.

Front Sideline = edge of the field which is closest to the audience that spans the entire length of the field.

Back Sideline = edge of the field which is farthest to the audience that spans the entire length of the field.

Front Hash = marked on every yard line, 60 ft from the front sideline.

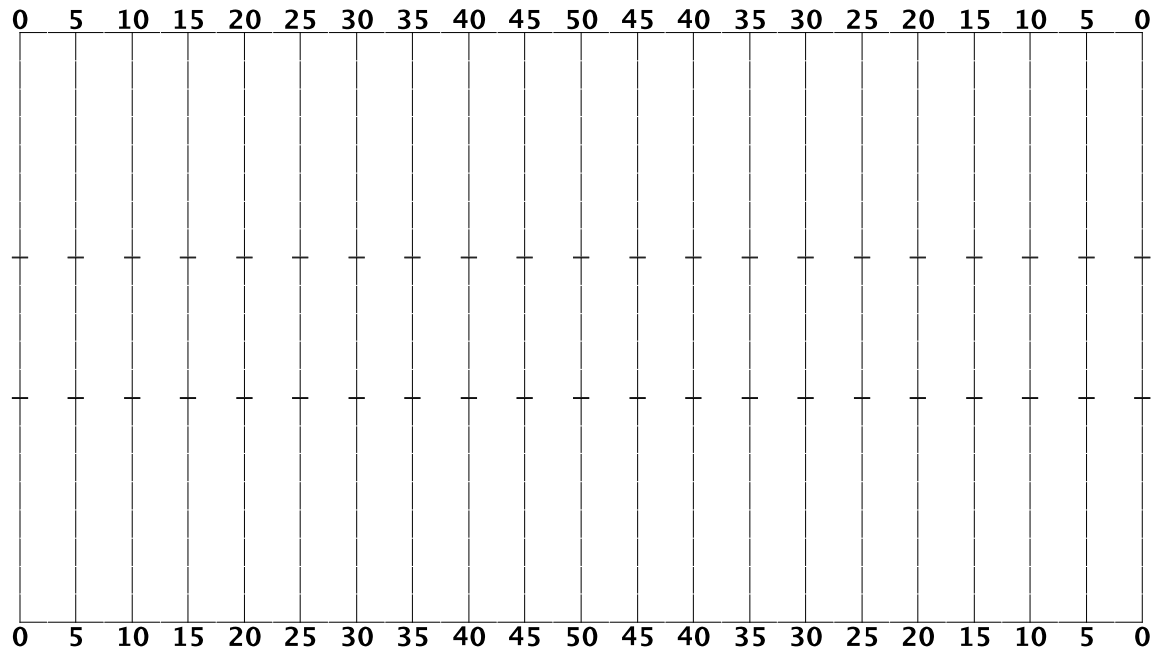
Back Hash = marked on every yard line, 60 ft from the back sideline.

Distance Between Hashes = 40 ft

Side 1 = when viewing the field from the audience member perspective, the side of the field that is to the left of the 50 yard line (center yard line).

Side 2 = when viewing the field from the audience member perspective, the side of the field that is to the right of the 50 yard line (center yard line).

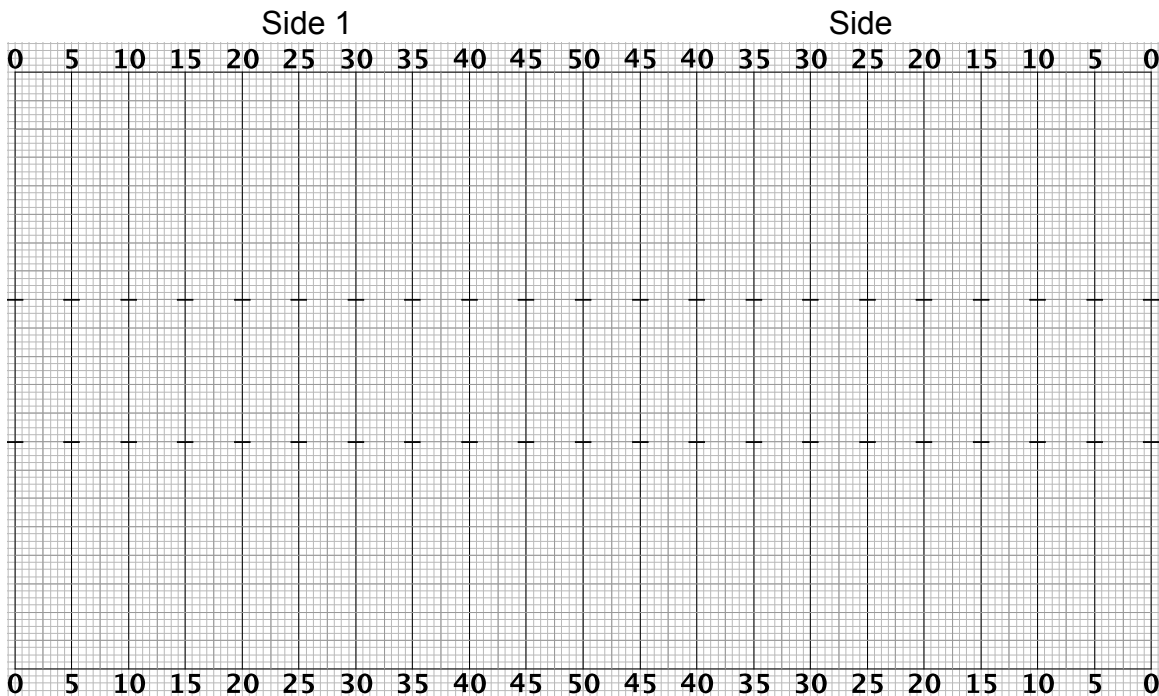
Example of the Football Field:



Converting the Football Field into a Coordinate Plane:

For our purposes, we will now take the basic mathematical concepts and apply them to the football field. The Hashes (Front and Back) and Sidelines (Front and Back), which run horizontally, will represent the X-axis. The Yard Lines, which run vertically, will represent the Y-axis. The unit of measurement that is represent by a number line (on each axis) will be the standard 8 to 5 step-size.

Example of Football Field Coordinate Plane:



Distance Between Yard Lines = 8 steps (8 to 5 step-size)

Distance From Sideline to Hash = 32 steps (8 to 5 step-size)

Distance Between Hashes = 20 steps (8 to 5 step-size)

Plotting Points on the Football Field Coordinate Plane:

Plotting points on the football field is the basis for learning drill. When plotting points on the football field, it is important to remember that while the basic concepts of plotting points remain the same, there are three small differences:

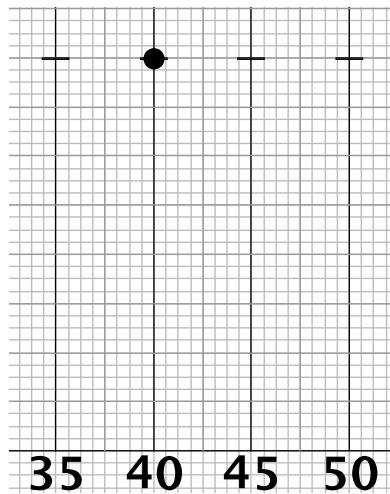
1. The origin is **NOT** in a fixed location. However, the coordinate will **ALWAYS** specify the location of the origin.

2. The terminology used for a pair of coordinates (X,Y) is replaced:
 - a. Left to Right = X coordinate
 - b. Front to Back = Y coordinate
3. Negative numbers are **NOT** used. Instead the following terminology is used to determine the direction of the point and/or vector:
 - a. Inside = moving **TOWARDS** the 50 yard line.
 - b. Outside = moving **AWAY** from the 50 yard line.
 - c. In Front = moving **TOWARDS** the audience.
 - d. Behind = moving **AWAY** from the audience.

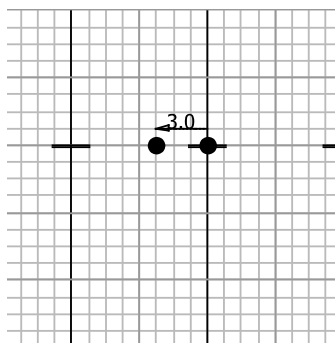
For example, we will plot the following coordinate:

Left to Right = 3 steps outside SIDE 1 40 yard line
 Front to Back = 8 steps in Front of Front Hash

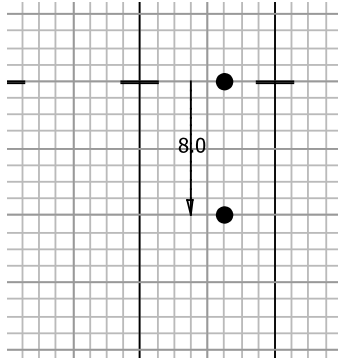
1. Determine the origin. This is the starting point.
 - a. Which side of the field? SIDE 1
 - b. Which yard line? 40 yard line
 - c. Which hash or sideline? Front Hash



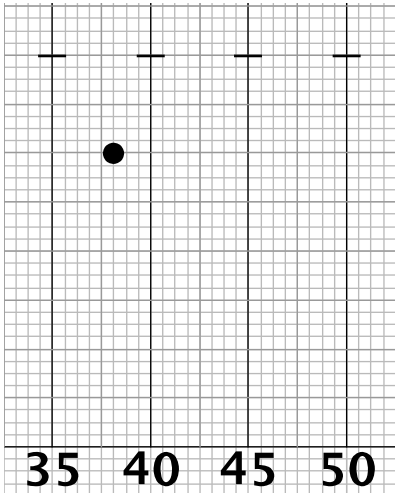
2. Plot the Left to Right by moving the point 3 steps (8 to 5 step-size) outside (away from the 50 yard line) the 40 yard line:



3. Plot the Front to Back by moving the point 8 steps (8 to 5 step-size) in Front (towards the audience) of the Front Hash:



4. You Have now plotted the point and know its precise location on the football field:



Assignment #2

The following assignment is designed to assess your understanding of the application of the basic concepts outlined in the packet. You are expected to **FOLLOW INSTRUCTIONS EXACTLY AS THEY ARE EXPLAINED**. In other words, there is no room for interpretation of the instructions. If you have any questions, **ASK A DIRECTOR OR STAFF MEMBER**. Please complete the assignment and **TURN IT IN TO YOUR SECTION LEADER BY THE END OF THE DAY TODAY**.

- I. **ON THE FOOTBALL FIELD PROVIDED**, Using a sharp **PENCIL**, plot the following points on the blank football field provided. Be sure to write the corresponding chart number next to the dot on the field. **PLEASE BE PRECISE**.

Chart 1. 2.0 steps outside SIDE 2 45 Yard Line

8.0 steps in front of Front Hash

Chart 2. 2.0 steps outside SIDE 2 40 Yard Line

8.0 steps in front of Front Hash

Chart 3. 1.0 steps outside SIDE 2 35 Yard Line

12.0 steps in front of Front Hash

Chart 4. 3.0 steps inside SIDE 2 25 Yard Line

7.0 step in front of Front Hash

Chart 5. 1.0 steps inside SIDE 2 30 Yard Line

4.0 steps Behind Front Hash

Chart 6. 4.0 step outside SIDE 2 40 Yard line

5.0 steps in front Back Hash

Chart 7. 2.0 steps inside SIDE 2 45 Yard Line

2.0 steps behind Back Hash

Chart 8. On 50 Yard Line

16 steps in front of Back Side Line

Chart 9. 4.0 steps inside SIDE 1 45 Yard Line

9 steps in front of Back Side Line

Chart 10. 3.0 steps inside SIDE 1 40 Yard Line

14.0 steps behind Back Hash

- II. **ON THE FOOTBALL FIELD PROVIDED**, Using a ruler, draw a straight-line path connecting the dots. **MAKE SURE THE DOTS ARE CONNECTED IN THE CORRECT ORDER**.
- III. Write your name in the **TOP LEFT CORNER OF THE FOOTBALL FIELD PROVIDED**. You will turn in **ONLY THIS DOCUMENT**.