

# How To Mark a Field

# Tools Required

- A long (150 yards) accurate tape measure with a ring on one end.
- A long (150 yards) string
- A can of red (orange) paint
- Four stakes
- A field marker
- Your kid's calculator

# Use Existing Lines?

- Probably not a good idea.
- Many AYSO fields have been incorrectly marked, you will just be repeating the bad markings.
- Measure the existing lines. Esp. the goal and penalty area. If these markings are good (6 x 20) and (18 x 44), and the field is a rectangle (both diagonals are the same length), use the existing lines.

# To do Beforehand

- Determine length of touch line. 110 yards is good for U12 and U14. 120 yards is minimum for U16 and U19. We'll use 120 yards.
- Determine length of goal line. 65 yards is minimum. For U16 and U19 use 85 yards. We'll use 85 yards.

# The Math

- Determine length of field diagonal.  
Pythagoras helps here:

$$d = \sqrt{t^2 + g^2}$$

– Where

- d is the length of the diagonal
  - t is the length of the touch line ( 120 yards )
  - g is the length of the goal line ( 85 yards )
- For our numbers, d = 147 yards, 2 inches

# More Numbers

- You will also need the diagonal of the
  - Penalty area: 47 yards, 1 foot, 7.5 inches
  - Goal area: 20 yards, 2 feet, 7.75 inches

# Why the Math?

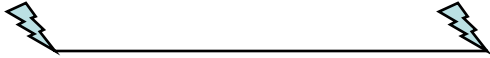
- The field must be a rectangle as must the penalty area and goal area.
- We use the diagonals to ensure we construct a rectangle



- and not a parallelogram



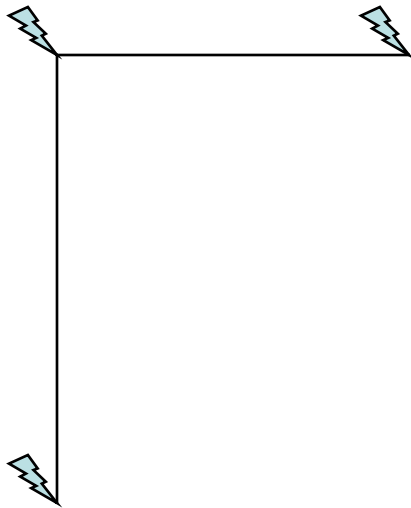
# Goal Line is First

- Measure the goal line and mark the ends with two of the stakes:
- 
- 
- This line represents the outside of the goal line.
- No paint yet



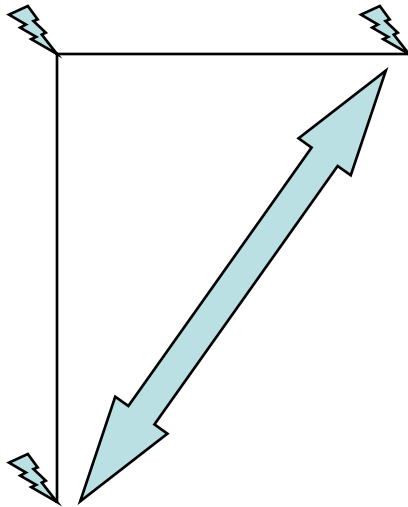
# Touch line is Next

- Measure the touch line from one of the stakes on the goal line, put a stake in:



# Check the Diagonal

- Measure the diagonal. It should be 147 yards, 2 inches:

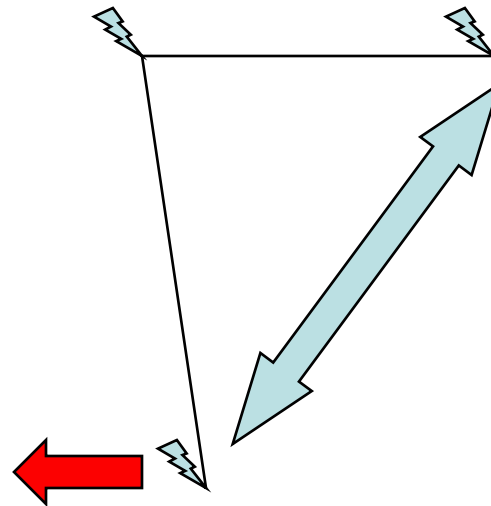
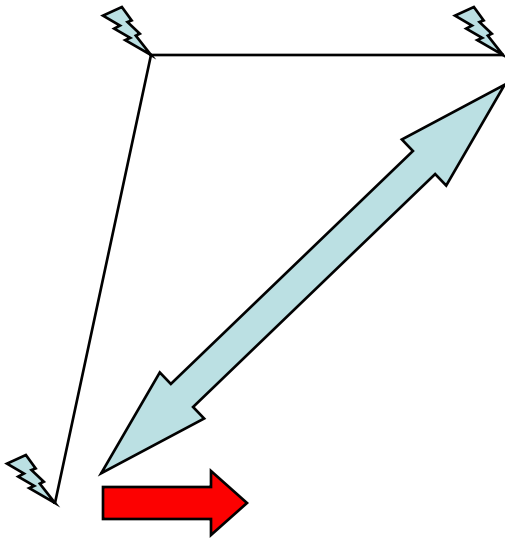


# Adjust the Touch Line

- If the diagonal is longer than 147 yards, 2 inches, the angle between the goal line and touch line is greater than 90 degrees. Swing the end of the touch line in toward the far stake on the goal line.
- If the diagonal is shorter than 147 yards, 2 inches, the angle between the goal line and touch line is less than 90 degrees. Swing the end of the touch line out away from the far stake on the goal line.
- See next slide for pictures

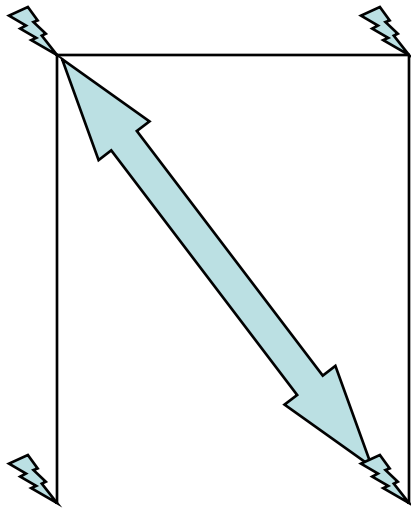
# Adjust the Touch Line

- Move touch line end in direction of red arrow until diagonal is 147 yards, 2 inches
- Too long. Too short.



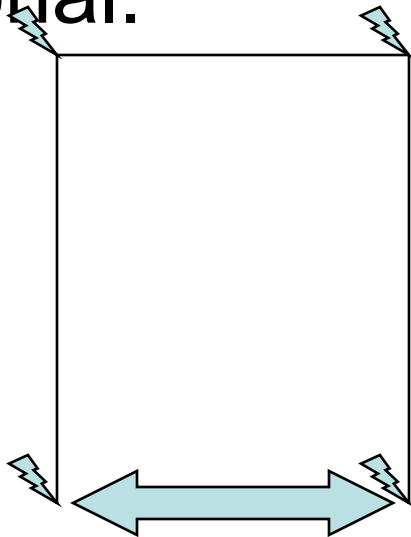
# Make second Touch Line

- Mark the second touch line and adjust its angle as described for the first touch line



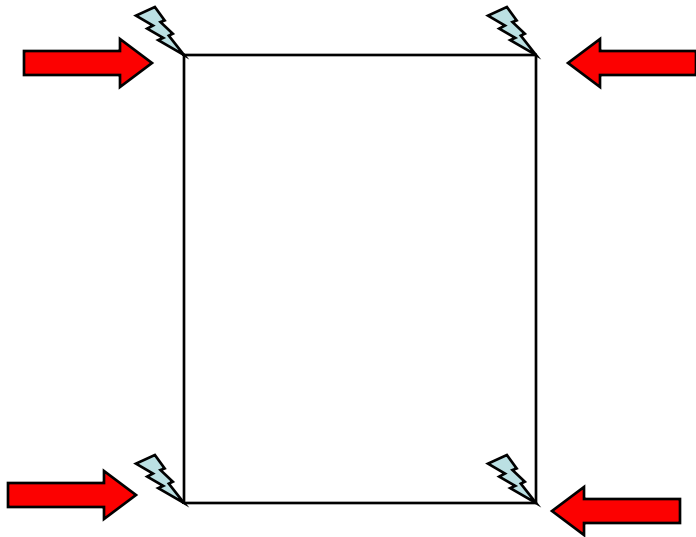
# Mark second Goal Line

- Measure the second goal line. It should be 85 yards. If not, go back and check the lengths of the touch lines and the diagonal.



# The Outer Lines

- Congratulations, you now have rectangle.
- Mark the four corners with the red paint

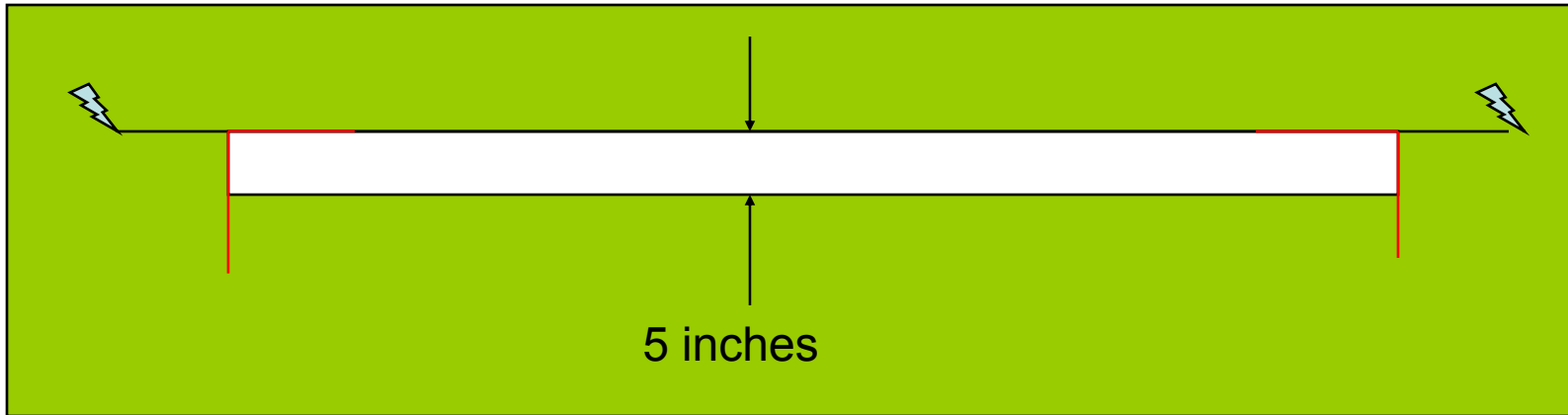


# Paint the Outer Lines

- Drive two stakes into the ground beyond the end of the line.
- Stretch the string tautly between these two stakes such that the string is on the outer edge of the red marks.
- Mark the chassis of the field marker where it should cover the string such that the outer edge of the 5 inch line is at the string.
- See next page

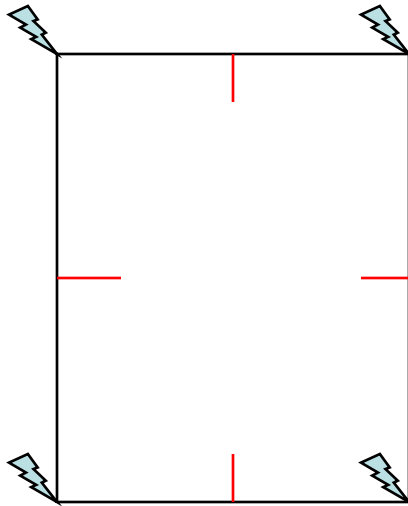


# Paint the Outer Lines



# Find the Middle

- Find and mark with red paint the middle of each line. 42.5 yards for the goal line, 60 yards for the touch lines

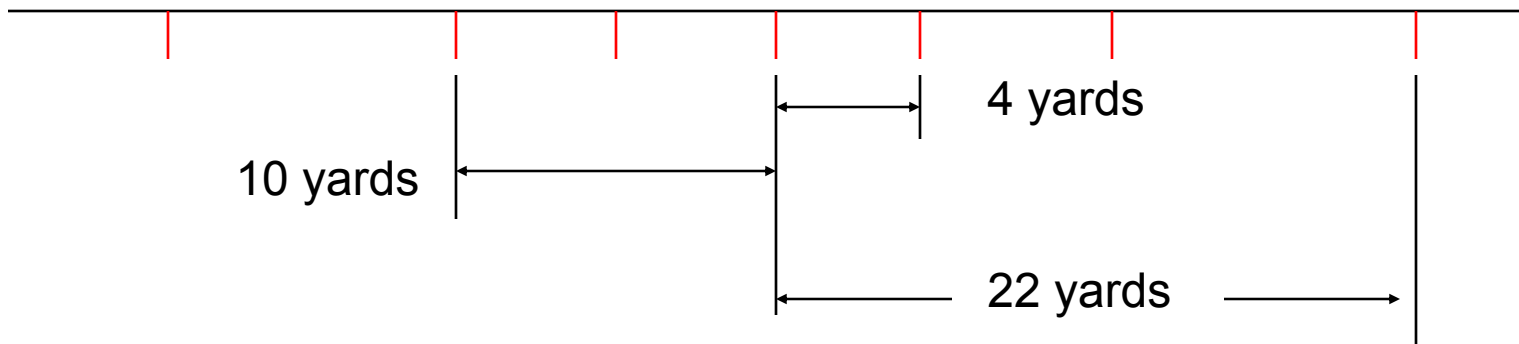


# Marking the Goal Line

- There are three things on the goal line:
  - The goal, 8 yards wide
  - The goal area, a rectangle 6 x 20 yards
  - The penalty area, a rectangle 18 x 44 yards.
- Each of these is centered on the goal line.

# Marking the Goal Line

- Starting at the center of the goal line, measure and paint a mark at 4, 10 and 22 yards on each side of the center mark:

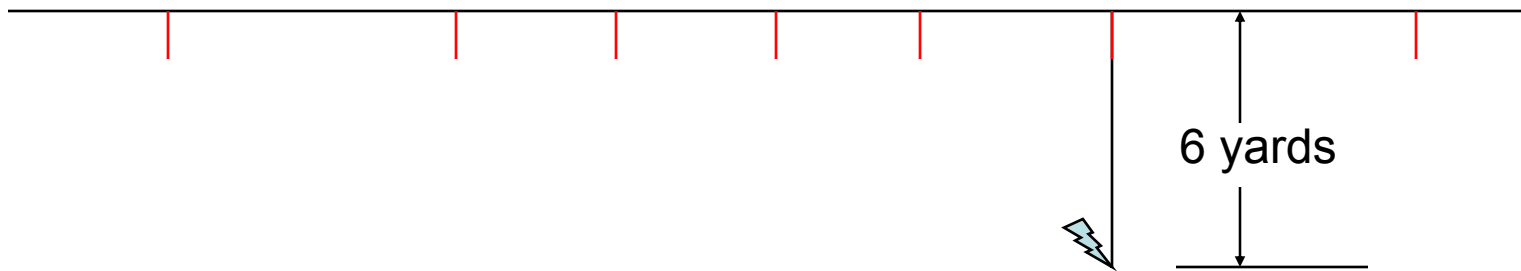


# Marking the Goal Line

- The 4 yard mark marks the inside of the goal post
- The 10 yard mark marks the outside of the goal area line
- The 22 yard mark marks the outside of the penalty area line.

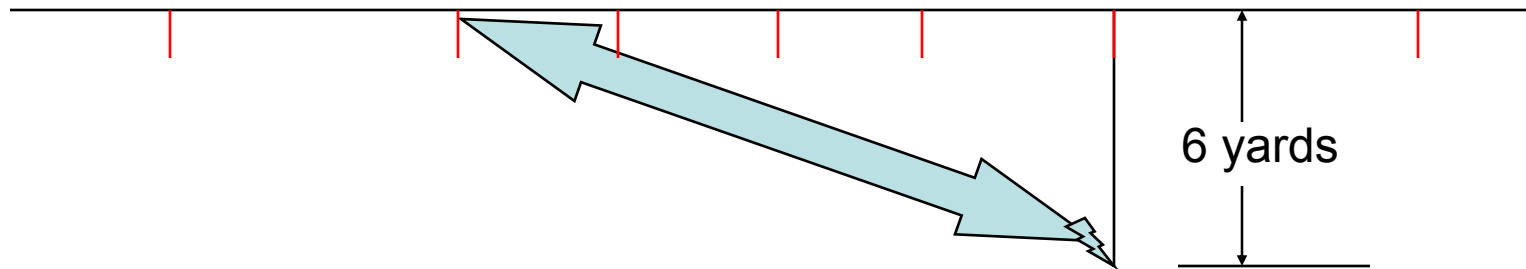
# Marking the Goal Area

- From one of the 10 yard marks, make a 6 yard line perpendicular to the goal line.



# Adjusting the angle

- As was done for the entire field, measure the goal area diagonal. Mark the end with a stake.

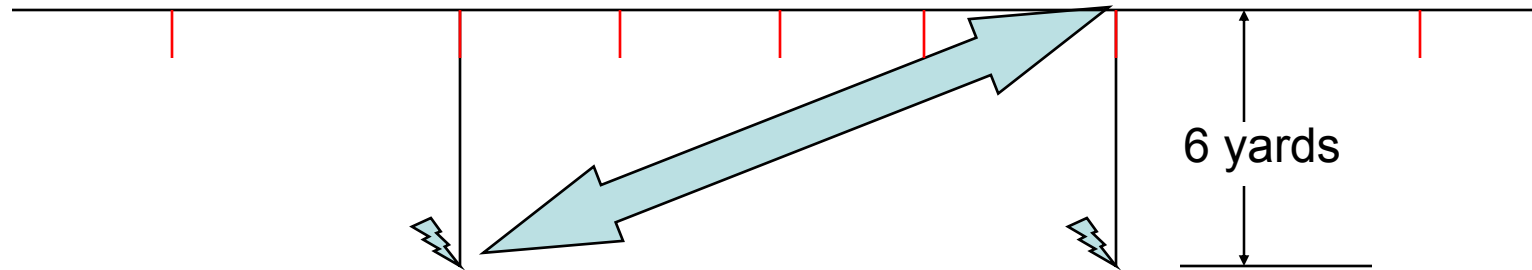


This should be 20 yards, 2 feet and 7.75 inches

Adjust the angle of the edge of the goal area line to achieve this measurement.

# Add the other Goal Area Line

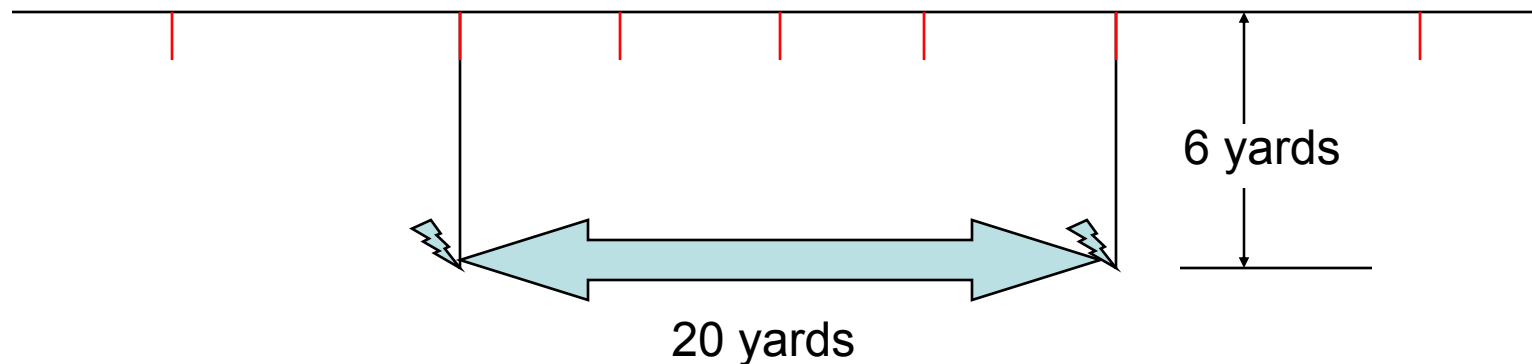
- Measure 6 yards out and mark the end with a stake.
- Check the diagonal and adjust as needed.





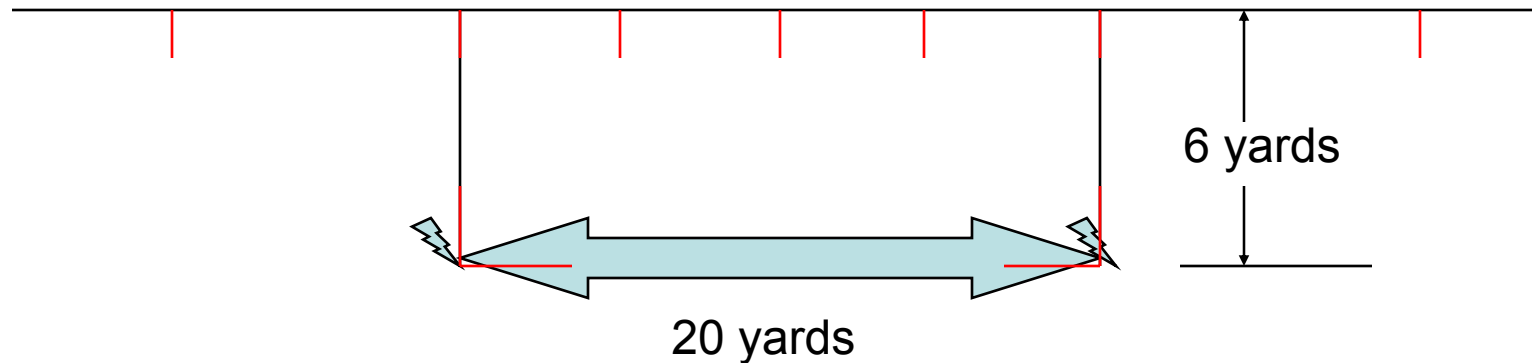
# Final check

- Check the distance between the two end stakes. It should be 20 yards.
- If not, verify the placement of the two perpendicular lines.



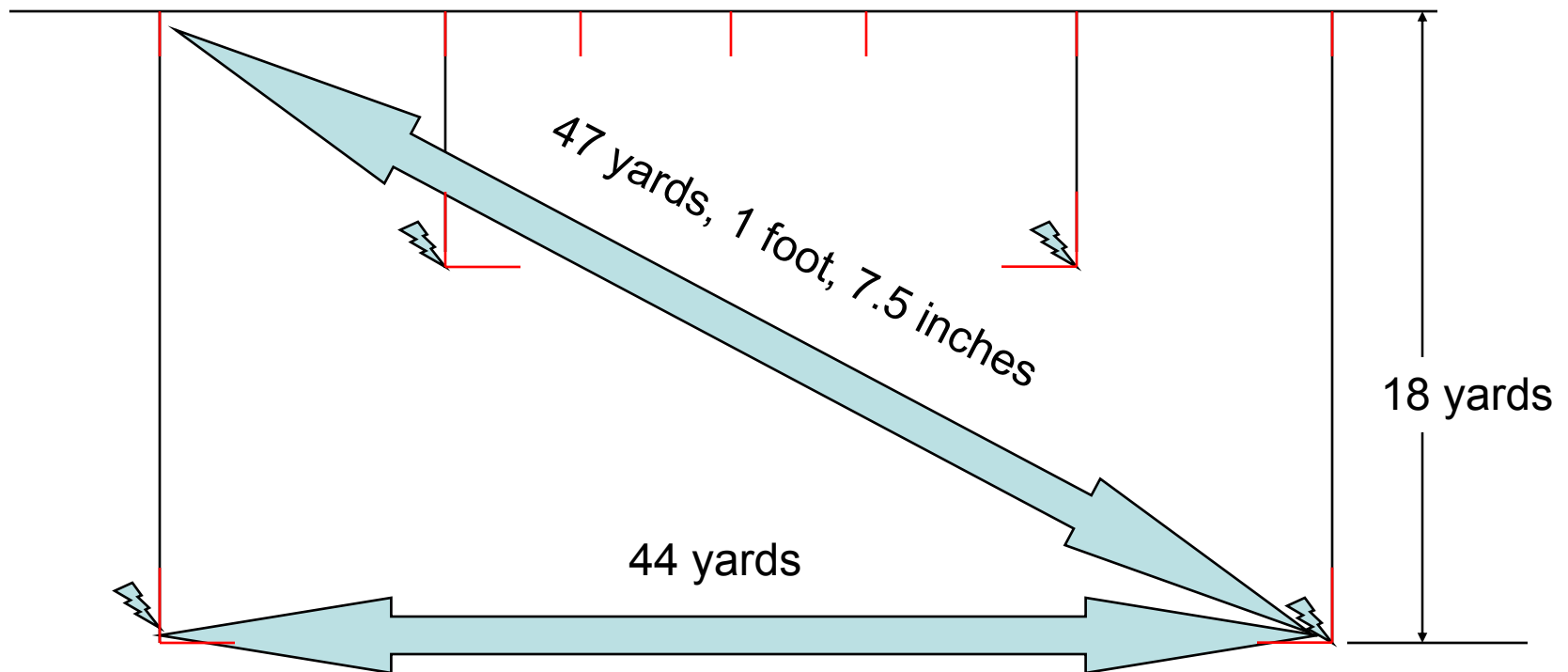
# Mark the corners

- After the ends of the goal area lines are correct, mark the corners with red paint:



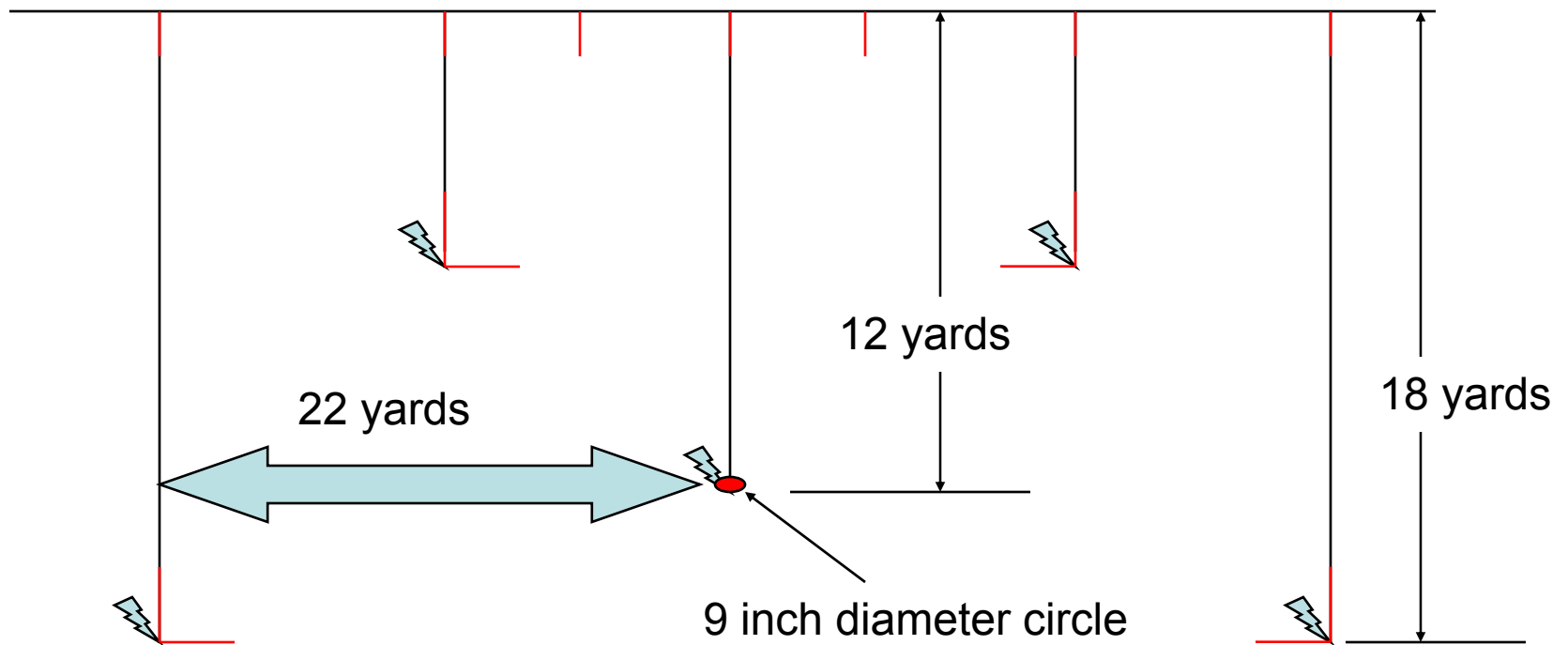
# The Penalty area

- The penalty area is constructed in the same manner as the goal area



# The Penalty mark

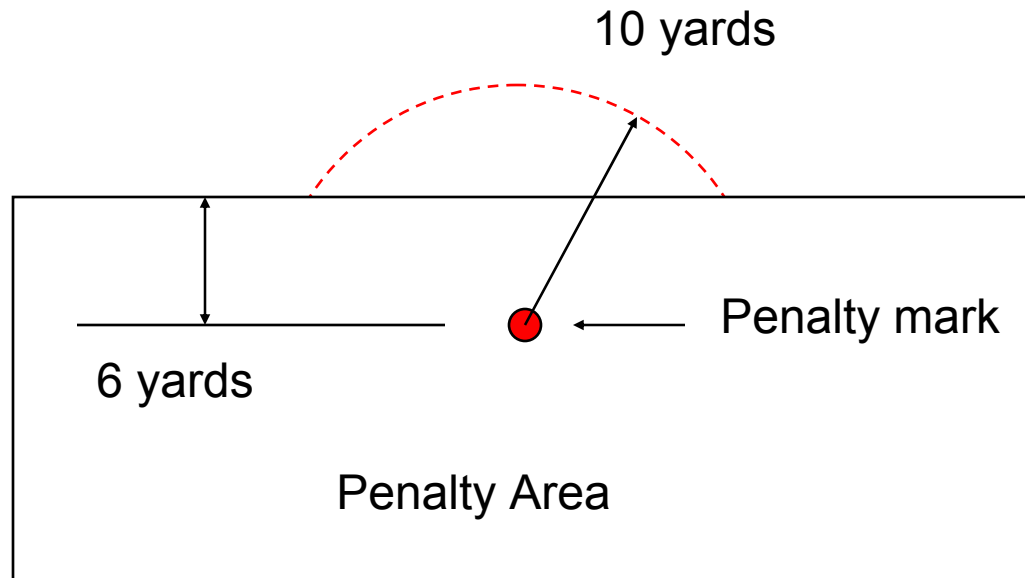
- From the center mark, measure out 12 yards. Ensure the mark is 22 yards from each penalty area line.



# The Penalty Arc

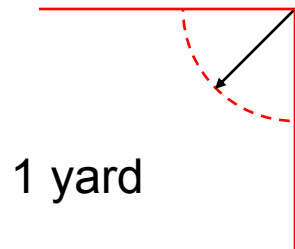
- The Penalty Arc is a 10 yard radius arc centered on the Penalty Mark outside the Penalty area.
- Drive a stake into the Penalty Mark, put the tape's ring over the stake and walk a 10 yard radius outside the Penalty area, painting the edge of the arc every few feet with red paint.

# The Penalty Arc



# Corner Arc

- At the intersection of the Goal Line and the Touch Line, make an arc with a radius of 1 yard.



# The Other End

- Mark the:
  - Goal
  - Goal area
  - Penalty area
  - Penalty mark
  - Penalty arc

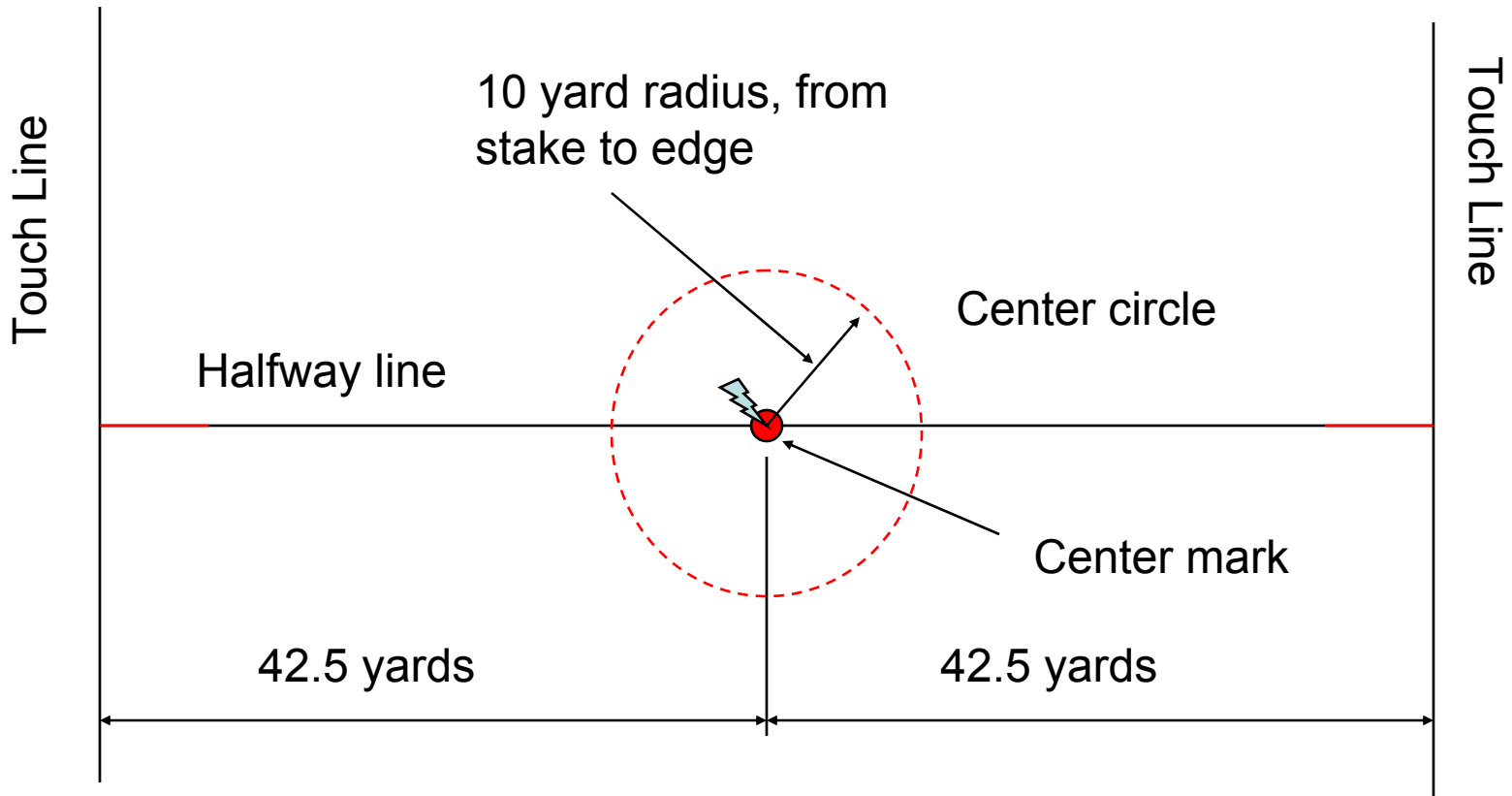
At the other end of field



# Middle of the Field

- From the marks at the middle of the touch lines, find the center of the field, 42.5 yards from each touch line.
- Mark the center mark with white paint and a stake
- From this spot make a 10 yard radius center circle.
- Put the tape's ring over the stake and walk around the stake at 10 yards making a red mark every few feet.

# Middle of Field



# Finishing

- Paint all the remaining lines.
- For all lines, except the halfway line, the red mark is the outside of the line
- For the halfway line, the red mark is the center of the line.
- Paint the two Penalty Marks and the Center Mark.
- Job well done!