

How To Mark a Barrel Pattern

Marking a barrel pattern can be intimidating, even if you have done it before. It is always nice if you can have an experienced barrel pattern marker help you out a few times. Or, even better offer to help others so you can learn before the duty is put on you!

Here are some ideas to help you prepare and plan ahead for this task.

1. **Assess your arena**

- Check ground conditions while considering barrel placement. There may be some areas not suited to place a barrel or some better suited.
- Small arena's - you may have to work around minimum distances, large arena's maximum distances. Medium arena's are sometimes the most challenging because you have to decide on your distances and best placement.
- Is the arena square and straight?
- Will the pattern have to be set on an angle in the arena?
- How is the gate positioned in the area?
- Will it be a run in or a set up?
- Is there a safe run out or will it be a closed gate on the way out?

2. **Have your pattern marking equipment ready.** You will need at minimum:

- 5 markers with rope, twine, chain or other non destructible cord attached. Use sharp spikes, horseshoes or other objects that will be able to be hammered into the ground or securely buried into the ground.
- A shovel or a hammer depending on what you are putting in the ground
- At least two measuring tapes of 200 ft in length or 1 300 ft tape works well too.
- Colored marking ribbon or tape to mark the fences or spray paint.
- Pen and paper for marking your measurements
- Calculator (if you aren't good at math)
- Help for holding tapes – at least one other, 2 extra is better.

3. **Know your association rules before you get ready to set up.**

Here are some guidelines from the National Barrel Horse Association and the Women's Pro Rodeo Association:

- NBHA Rules state: a minimum of 15 feet between each of the first two barrels and the side fence. 2) a minimum of 30 feet between the third barrel and the back fence. 3) a minimum of 30 feet between the time line

and the first barrel. Local promoters and show organizers should use a barrel pattern that best fits their arena, subject to the above restrictions.

- WPRA Rules are more detailed and state the following:

12.11. Barrel Pattern

12.11.1. The standard course for Barrel Race is: ninety (90) feet between barrel one (1) and two (2); one hundred five (105) feet between barrel one (1) and three (3) and between barrel two (2) and three (3); sixty (60) feet from barrels one (1) and two (2) to the score line. Score line should be at least sixty (60) feet from end of arena, if arena allows, and not less than forty five (45) feet.

12.11.2. The following shall be used in smaller arenas.

12.11.2.1. Barrels one (1) and two (2) should be at least eighteen (18) feet from the sides of the arena. In extra small arenas they may be less. In no instance should they be any closer than fifteen (15) feet from the sides of the arena.

12.11.2.2. Barrel three should be no closer than twenty five (25) feet to the end of the arena.

12.11.2.2.1. Barrel pattern should be situated in such a manner as is centered to the gate with the first and second barrel equal distance from the gate.

12.11.2.3. If arena size permits, a standard pattern should be set and no larger.

12.11.2.4. In small arenas, it is recommended the pattern be reduced proportionately to a standard barrel pattern. By no means shall the stopping distance be less than forty five (45) feet.

12.11.2.5. A “run out” alley may be included as part of the stopping distance, when necessary, or when the overall length of the arena does not allow for forty five (45) feet stopping distance. Decision is subject to Director approval. An open gate into a “safe” alley may be used as part of the forty five (45) feet stopping distance when necessary and upon Director approval. A “safe” alley must be a minimum of ten (10) feet wide, meaning that there will be a minimum of ten (10) feet between any obstructions in the alley. Alley way and any subsequent crossbars must be a minimum of twelve (12) feet high. Any bars, boards, wires or cords crossing the alley floor must be covered with dirt. The alley must be well lit, free of people and horses and have a dirt floor. The stopping distance in the alley must be at least as long as the stopping distance provided in the arena.

12.12. Marking Barrels

12.12.1. Determine from which gate contestants will enter the arena from and mark pattern accordingly. If arena gate is to be used as a center gate, and contestant is required to run in, barrel pattern must be situated in such manner as is centered to the gate with the first and second barrel equal distance from the gate. If contestant is not required to run in, a standard pattern must be set, and no larger, as arena size and conditions permit.

12.12.2. Markers may be a pointed metal stake, horseshoe or can with a chain or rope attached to the end of it. Cover the object, leaving only chain or rope on top of the ground.

12.12.3. Markers should be buried at the location of each barrel, so the barrels will be in the same place during each complete go round.

12.12.4. Permanent markers should be set for the timer. Overhead lasers may be used to mark barrel pattern.

12.12.5. Judges are responsible for making sure pattern is set according to WPRA rulebook prior to first performance or slack.

12.12.6. Once a barrel pattern is set, any change to the pattern must be approved in writing, on the original barrel pattern sheet, by the judge. Failure to do so will result in a \$100 fine for the person(s) changing the pattern.

12.12.7. Judges will post one copy of pattern measurements and either keep or give to rodeo secretary the remaining copy.

12.12.8. Brightly colored 55 gallon steel drums with both ends enclosed must be used. There shall be no rubber or plastic barrels or barrel pads used. Same barrels must be used throughout entire rodeo.

12.12.9. When setting barrels on marker, center of barrel shall be positioned over where marker comes out of the ground.

12.12.10. When rodeo has non-pro, junior barrel race, or queen contest that uses the cloverleaf pattern, or any barrel race held in conjunction with a WPRA barrel race, this race must be run after the WPRA barrel race.

12.12.10.1. An additional event requiring the use of a barrel must not be put on WPRA barrel markers.

13.1. Electric Eye Setup

13.1.1. All WPRA barrel races must be conducted with the use of electric eye timers. Failure to use an electric eye will result in a fine for the stock contractor of \$250.00 for the first offense, and doubling progressively thereafter.

13.1.1.1. Equipment necessary: complete electric eye timer plus one extra timing clock or two stopwatches to be operated manually.

13.1.1.2. In the event the electric eye fails to operate; the backup watch(es) shall be used.

13.1.2. Permanent markers shall be put in the ground for the electric timer. Electric timers shall be placed on the score line no closer than the width of the first two (2) barrels for the electric eye to be centered in each performance.

13.1.2.1. When the backup flagger is unable to stand directly behind the electric eye (i.e. timer is in the fence) and if the electric eye fails to work, the contestant must be given a rerun.

13.1.3. When setting electric eye on the markers, center of eye should be positioned over point where marker comes out of the ground.

13.1.4. If electric timer is mounted in the fence it must be on a permanent post.

13.1.5. Line on fence for flag man shall be well marked. These markers should be checked every performance along with the barrel markers and re-staked if pulled out.

13.1.6. Set timer the same height and position each performance and lock the legs. Height of tripod shall be waist high.

13.1.7. PRCA Stock Contractors and/or Rodeo Committees shall not use WPRA owned electric timer for use in timing any non-WPRA approved event, unless by special approval of the WPRA Board of Directors.

Marking a Standard Pattern:

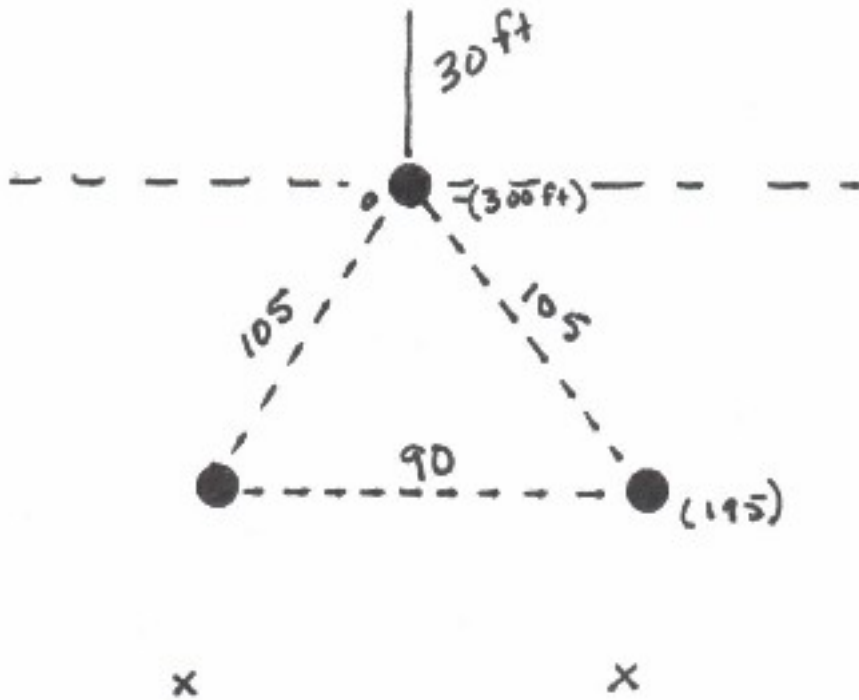
Here are some step by step instructions on how to mark a standard pattern in a large arena with a centered gate. Everyone seems to have a bit different way of getting the same great job done, but here is one example:

Assess your arena for minimum available distances. Third barrel needs to be at least 25 ft off the fence, you need at least 45 ft stopping (more is better) and room for a 60 ft score).

In this example we decide we have plenty of room so we will leave 30 ft off the fence and third barrel and we are certain we'll have 50-55 stopping distance left by our quick assessment.(not to scale)

We can decide where third barrel is going to be by taking a tape from the fence to 30 ft and temporarily marking and taking another from left to right from one side of the arena to another to find the center of the arena. The third barrel marker would go where the two intersect. You could also "eye ball it" to the gate to find your center.

With yourself and two others make the triangle for the barrels using one 300 ft tape. In this example the person holding the end will be at where we think the left barrel will be, the second person takes the tape to 90 ft to where the right barrel will be. The third person takes the tape up to where the third barrel will be. The third barrel marker should be at 195 on the tape (90 + 105). The person from the left barrel will need to go up to the third barrel to get the rest of the tape. She will take it back to her "barrel" and hold both ends. She will have 0 and 300 ft.



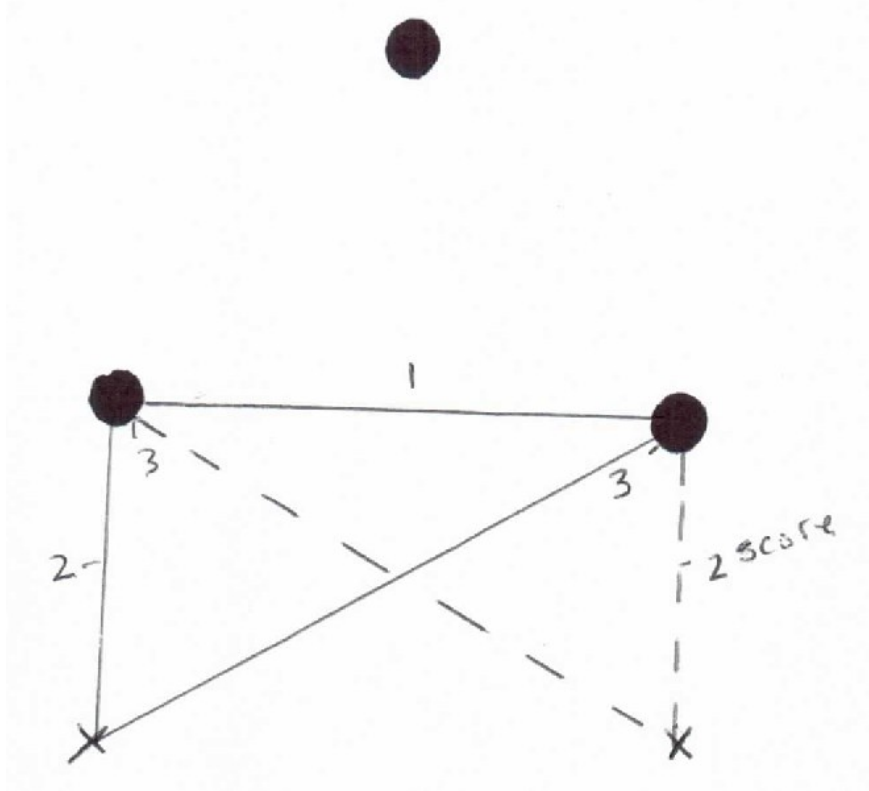
If you are “eye balling it” all three can shimmy the pattern around so it looks square to the arena and put in the markers.

If you have already marked your third, then your people at first and second will move until their tapes are tight and put in the markers at 0 and 90 on the tight tapes.

You will now have your 3 barrels marked. At this point you will need to mark your scoreline. In this case we are marking a standard pattern so it will be 60 ft from first and second to the scoreline. There is much room for error here so we need to make sure the pattern is square to the scoreline so it is even for people running both left and right.

Use the following method to ensure the scoreline is equal distance from barrels 1 and 2

Diagram:



Run your 300 ft tape (or connect 2 shorter tapes).

Go from barrel #1 to potential marker spot – 60 ft. (2) Have someone hold it there, now take the tape on the diagonal back to barrel #2 (3) 108' 2" pull the tapes tight and mark the score (X).

Now do the same for the other side.

108' 3" comes from the geometry math formula for finding the length of the missing side of a triangle. $a^2 + b^2 = c^2$ (or $a \times a + b \times b = \text{square root of } c$
In this case $= 60 \times 60 + 90 \times 90 = 11700$ (then take square root) $= 108.17$

If for example you want to have 45 ft score instead of a 60 ft score and you are only 80 ft between the barrels you would go:

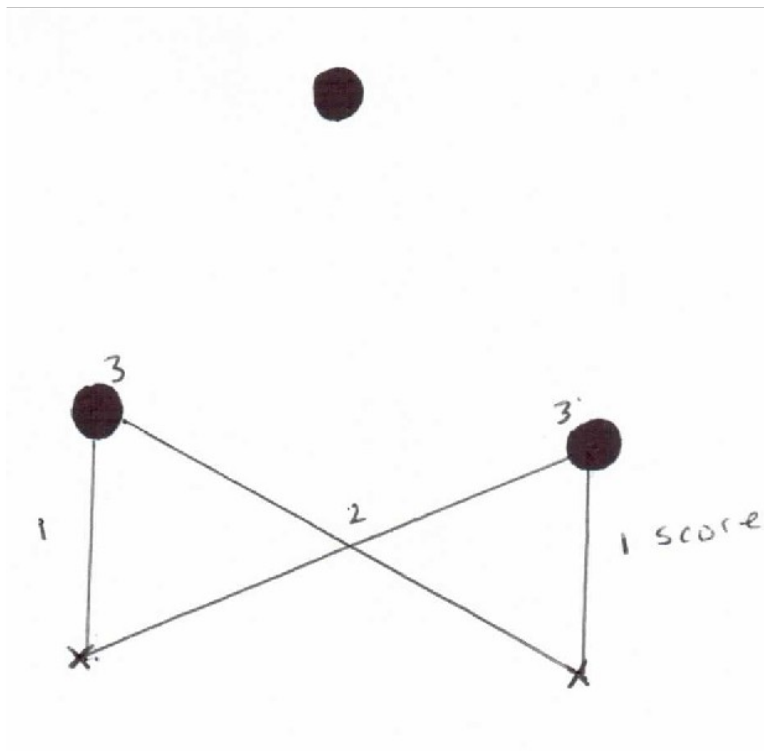
$45 \times 45 + 80 \times 80 = 8425$ then square root $= 91.79$ ft

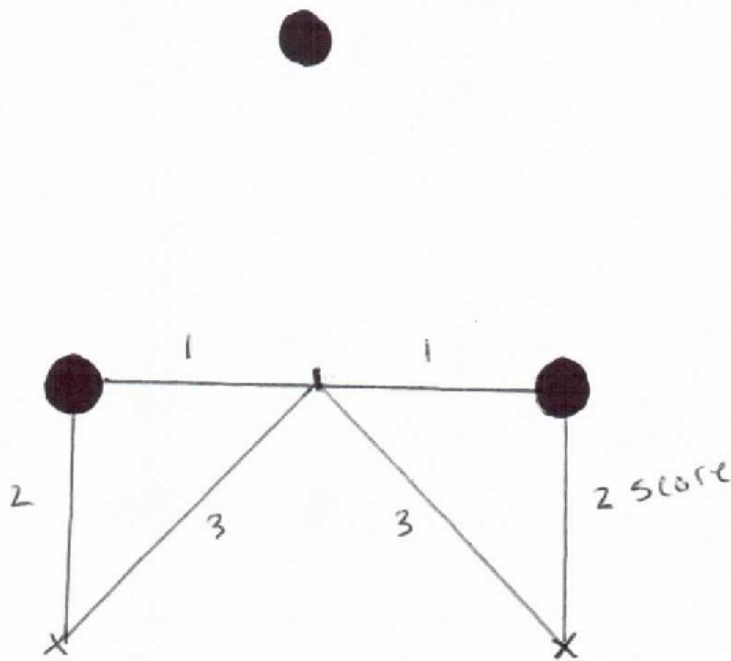
To figure the .79 of a foot, there are 12 inches in a foot so $12 \times .78 = 9.36$ so on your tape you would go to 91'9".

Here is a cheat sheet you can use incase you don't have a calculator handy. It tells you what your diagonal should be based on the fixed measurements.

Scoreline	Distance between 1 & 2 Barrels						
	60	65	70	75	80	85	90
30	67.1	71.6	76.2	80.8	85.4	90.1	94.9
35	69.5	73.8	78.3	82.8	87.3	91.9	96.6
40	72.1	76.3	80.6	85.0	89.4	93.9	98.5
45	75.0	79.1	83.2	87.5	91.8	96.2	100.6
50	78.1	82.0	86.0	90.1	94.3	98.6	103.0
60	84.9	88.5	92.2	96.0	100.0	104.0	108.2

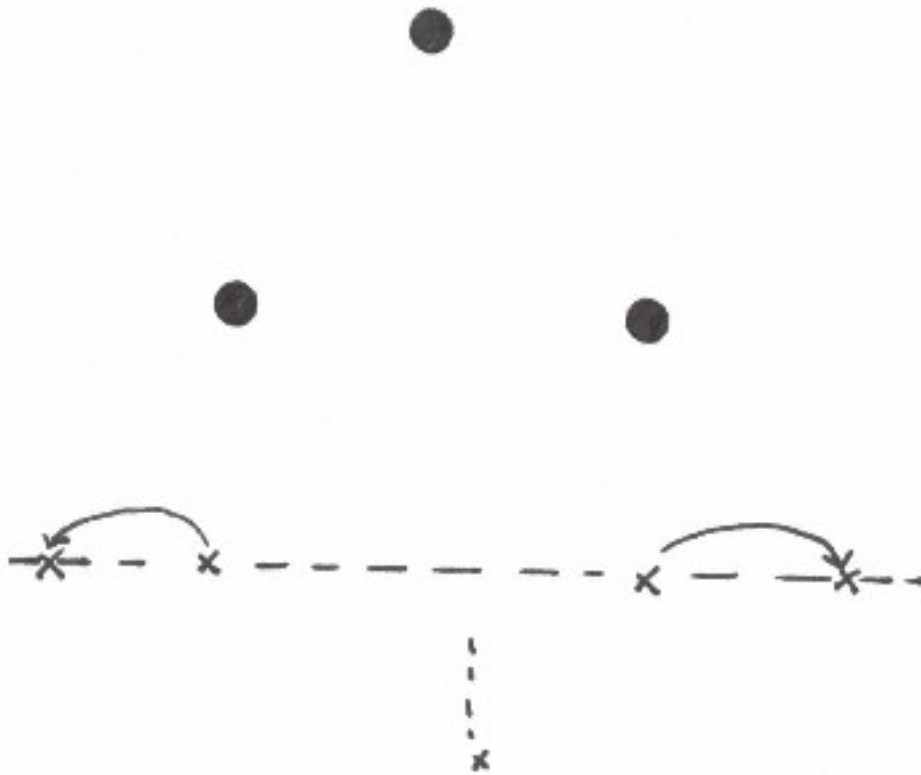
If you don't have a calculator and you have at least 4 people to help you can manually adjust the tapes so that the people holding at both timer ends move back and forth until they are both on the same number. The number at (2) will be the same on each tape and the numbers at the barrels (3) will be the same as will the numbers at the score (x).





In the above example we have found the center between first and second. We have pulled our score (2) (whatever it may be) then ran the tape back up to the center. If we used two tapes, our numbers should be equal at each point. If not, we would adjust where our score sits until it is equal.

You can place your markers directly out from your first and second barrels or you can pull another tape across crossing both temporary timer markers and back to closer to the fence. In smaller pens you will want to do this and leave at least 5 ft between the wall and the timer marker. In large pens on a standard pattern it isn't necessary. It is mostly to get the timers out of the way so they don't get run over. This is most often done on small patterns.



Moving score markers out (above)

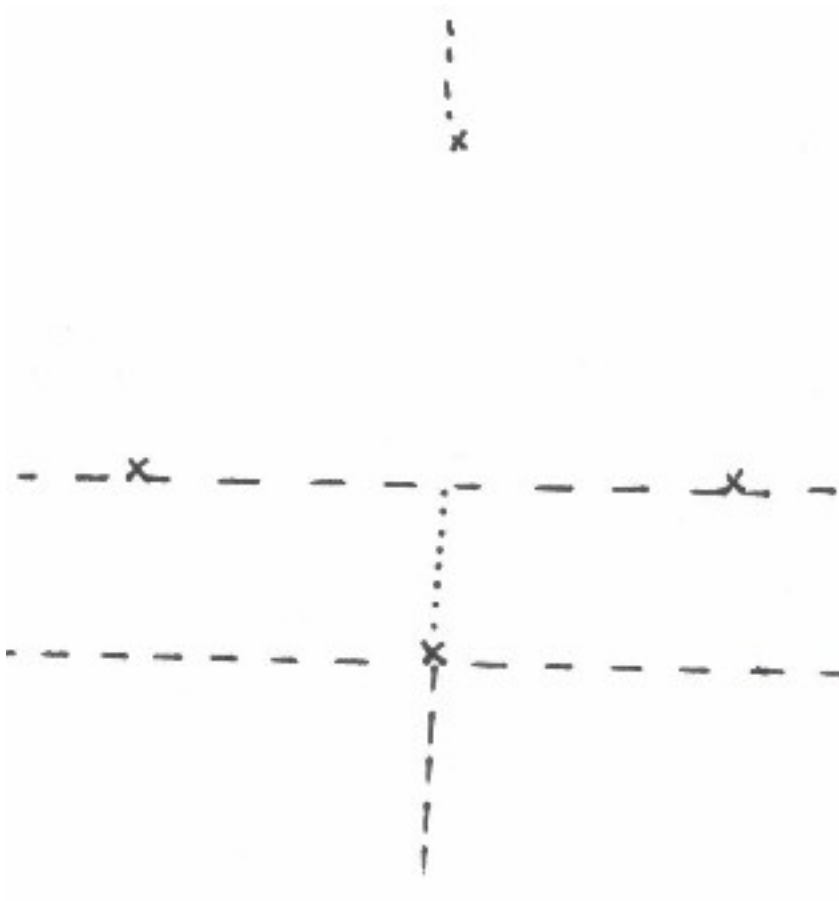
Once your 5 markers are in place, you will need to mark on the walls with colored tape or spray paint (if appropriate) so there is a reference point for finding the markers should one get lost. You will also record on the judges/office sheet the measurements between the barrels and off the wall. When the arena is groomed the markers are often difficult to find. By marking the walls the barrel rep can start there and step off the measurements from there to dig for the missing marker.

Marking in a small arena or indoor arena/barn

In this case you will likely have a square/straight sided pen where you will use the minimum distances.

Some people start with the stopping end work up because of the limited stopping distance.

You will want a minimum of 45 stopping. Run your tape from the stopping end of the arena up the center 45 feet and put a temporary marker there. You could also just run up the side wall 45 ft just to give a visual.



The score you will have room for will be determined by how long your arena is because you are limited by the third barrel distance off the wall which is 18 ft (under most rules – check yours). You can go up to third barrel and find a suitable place for third barrel to be at least 18 ft off the wall. Take a tape across the arena to find the center and T it with your 18 ft tape to temporarily mark your

third barrel. Since the arena is built square/rectangle it is safe to assume this is your center.

You have your stopping set and your third set based on minimums now you can decide on your arc and your score line distance. Some associations have score line minimums. For this case the minimum is 30 ft so we can set the score and first and second barrels square using the methods discussed above.

The way the arena is in this example we ended up with exactly 60 feet between first and second.

We will use the same math formula as above. We know the two sides of the triangle, we just need to find our third side.

We know our score is 30 and our distance between first and second is 60.

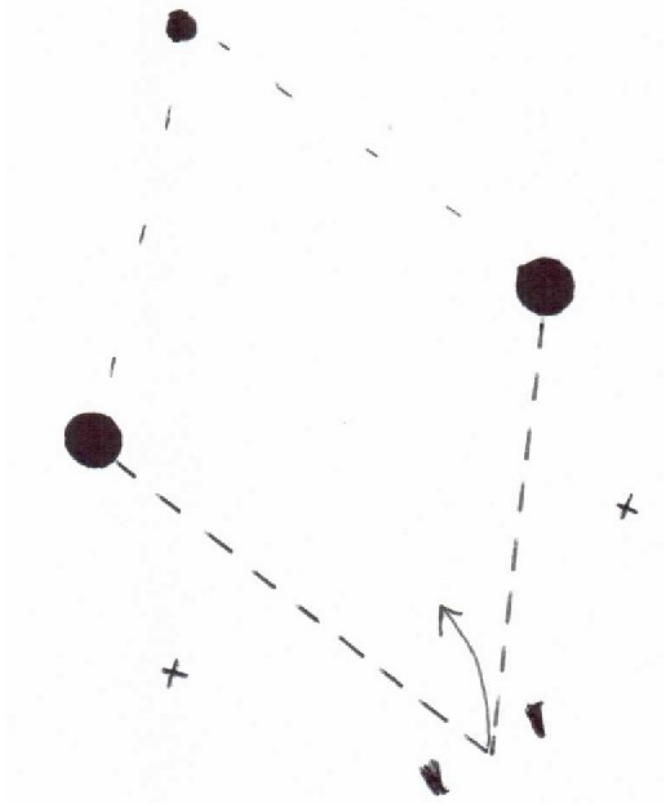
$30 \times 30 + 60 \times 60 = 4500$ – take square root = 67.08 0.08 of a foot is 1 inch. So 67'.1" across the diagonal of the triangle to find your marker spots.

Inside you will want to pull the markers back by pulling a line across the markers and setting them out of the way, closer to the walls so they don't get run over and they aren't a visual distraction.

Some associations have rules where the arc to third must not be any more than 25ft longer than the distance between first and second. In this example that won't be a problem we are only going to have 70 feet left so we are within the rules.

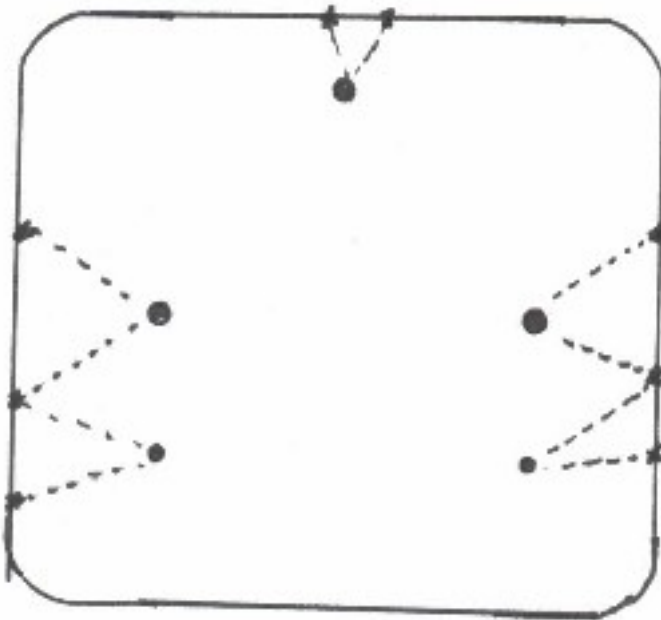
Angle patterns.

Angle patterns can be intimidating but they don't need to be. The trick is to get your pattern centered and square to the gate. One handy tip for this is to get a plan like we have for the other scenarios. Once you think you know where you want your pattern you can "flip the pattern" by having the person holding the tapes for your imaginary third take the tapes to the gate. If you are square she should find herself lined up with the center of the gate. If she is off center, the people holding for first and second can adjust themselves accordingly so the third barrel person is centered. Once that is settled the third barrel person can go back down to third. You will want to make sure you meet all the minimums off the walls if a concern before permanently marking. It is especially important that all walls be marked and marked on the judges sheet if line was drawn and measured on a angle or straight out so markers can later be found.



Marking Fences with a V

This is an extra step that could or should be taken if the arena conditions or grooming equipment are likely to result in lost markers. You will measure two points on the wall from your marker in a V and take down both those measurements and marking both spots on the wall. When the marker is lost you can simply measure off the wall to find the marker location. I have also seen where cord or string is tied to the two points on the wall and measured to the marker so that if a marker is missing you can simply pull this string from the wall tight to your marker/barrel point and either remark or reset the barrel.



The bottom line

The most important part of marking a barrel pattern is that it be fair for each barrel racer whether they run left or right. Your priority should be that the arc from 2 to 3 and 1 to 3 be equal and the score line be square so there is no disadvantage one first barrel to another.