

1 Q2

Here we first find out the homography matrix to project image coordinate into real world coordinate system

$$H = \begin{bmatrix} 0.000517735134319052 & 0.000407805071551645 & -0.716644717566459 \\ 0.000226505793277553 & -0.00130393875589523 & 0.697435824614415 \\ 1.82224827764833e-07 & 1.10832279800233e-05 & -0.00119720083187273 \end{bmatrix}$$



Given the dimension of outer Dee box is 18ydx44yd

Coordinate of points A,B C in image is

A = 1023,812

B = 1142,515

C = 369,433

When we apply homography transform on these points than we get a points A',B',C' in world coordinate system.

$X' = H * X$

From this transform we get coordinate of points A',B' and C' as

A' = 18,-16

B' = 18,60

C' = -92,59

Now length of playing area L = BC = 109yd

Width of playing area AB = W = 76yd