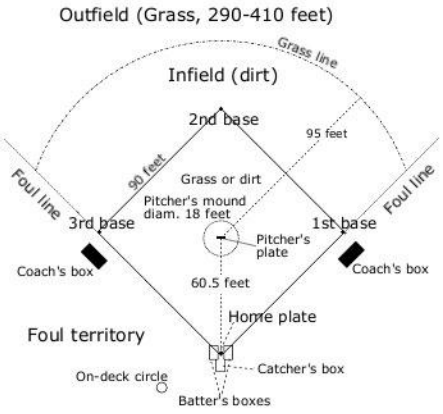
Baseball Math

The CSU Sacramento's Hornet Baseball field is about 30-35 years old. The concept of a baseball field started around the 1800's. The original baseball field looked nothing like what it does today; many changes have taken place in the 19th century to get the field we use today.



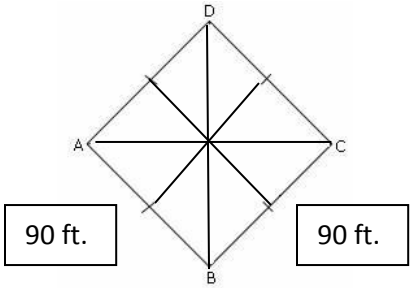
Problem:

If you measure the length of one side of the green grass area where the pitcher's mound is, it is 90 feet long, what is the area of a grass diamond? The perimeter?

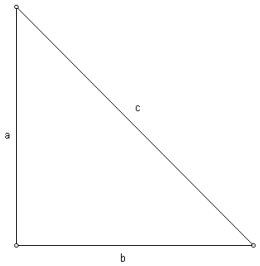
Area

1. Using the formula for area of a diamond, A=.5$(d_1)(d_2)$, d_1= the length from 2nd base to the catchers box, d_2= the length from 1st base to 3rd base

2. What we know is that one side is 90ft and all the sides are the same.



3. By taking a triangle out of the shape of the diamond and dividing 90 by 2 we get 45ft. for the sides of a triangle.



4. Using the Pythagorean formula, $a^2 + b^2 = c^2$, we plug in the numbers,

$$45^2 + 45^2 = c^2$$

7. Plug in $d_1$and d_2 into the area of a diamond equation, A=.5$(d_1)(d_2)$, A=.5(127.28) (127.28) =8100.1$ft.^2$

8. Just a note that another student did this problem and had gotten a different answer.

2025+2025=c^2

4050=c^2

$\sqrt{4050} = \sqrt{c^2}$

63.63ft.=c

5. Now we know the hypotenuse of the triangle and can plug it back in to find $d_1$and d_2.

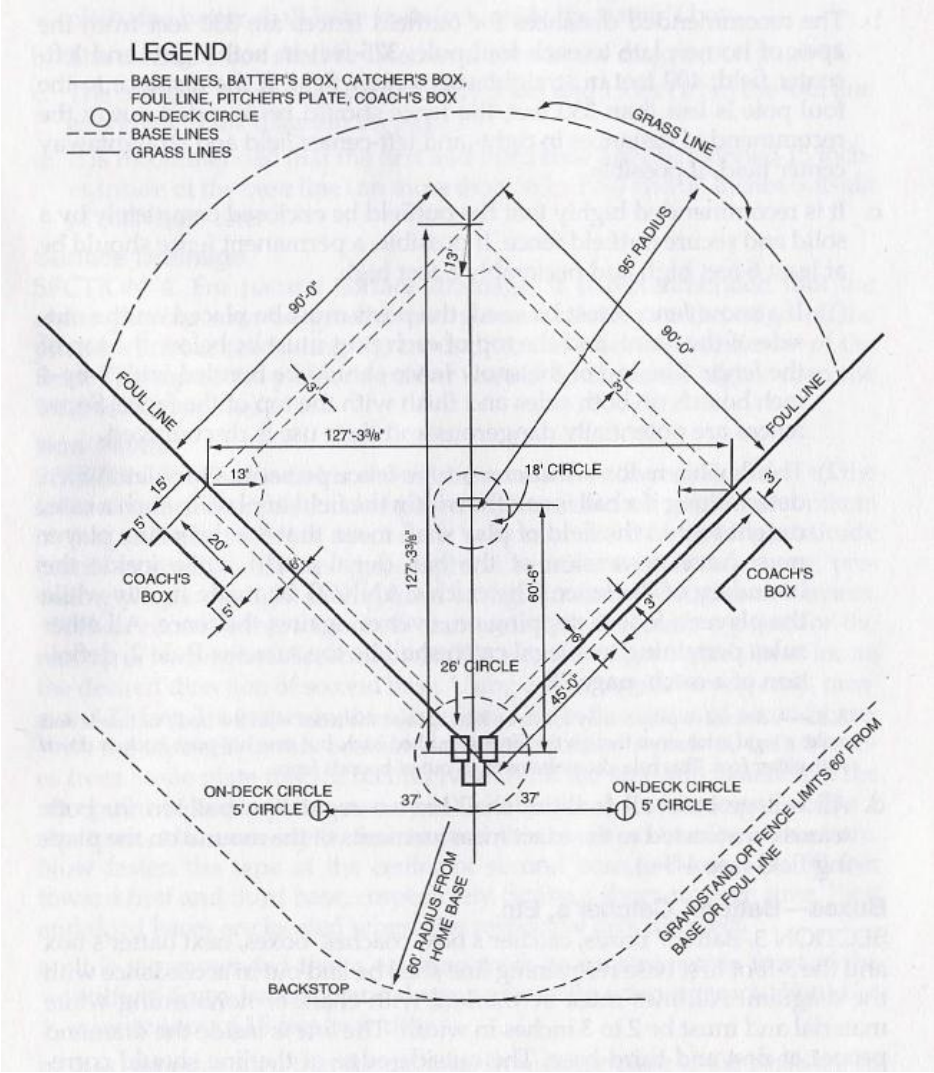
6. Take the number 63.64 and multiply it by 2, you get 127.28 ft. Now you have $d_1$and d_2.

Perimeter

1. Perimeter of the diamond is found by adding all sides together. We know that all sides are equal.

2. By substituting into P=x+x+x+x we get P=90+90+90+90=360 feet.

3. Other applications could be using angles, finding the distance of different parts of the field, and using other formulas



top picture

CSU Sacramento
Playing Field outline