

29. Given an array of points where $\text{points}[i] = [x_i, y_i]$ represents a point on the X-Y plane and an integer k , return the k closest points to the origin $(0, 0)$. The distance between two points on the X-Y plane is the Euclidean distance (i.e., $\sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$). You may return the answer in any order. The answer is guaranteed to be unique (except for the order that it is in).

PROGRAM:

```
import math

def kClosest(points, k):
    distances = [(point, math.sqrt(point[0]**2 + point[1]**2)) for point in points]
    distances.sort(key=lambda x: x[1])
    return [point[0] for point in distances[:k]]

points = [[1,3],[-2,2],[5,-1]]
k = 2
print(kClosest(points, k))
```

OUTPUT:

```
[-2, 2], [1, 3]
```

TIME COMPLEXITY: $O(n \log k)$