

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).

Code:

```
import heapq

def kClosest(points, k):
    heap = []
    for (x, y) in points:
        dist = x * x + y * y
        heapq.heappush(heap, (dist, [x, y]))
    result = []
    for _ in range(k):
        result.append(heapq.heappop(heap) [1])

    return result
points = [[1, 3], [-2, 2], [5, 8], [0, 1]]
k = 2
print(kClosest(points, k))
```

Output:

```
[[0, 1], [-2, 2]]
```

Time Complexity:

- $T(n) = O(n)$