150. Write a program that finds the closest pair of points in a set of 2D points using the brute force approach.
Input:
A list or array of points represented by coordinates (x, y).
Points: [(1, 2), (4, 5), (7, 8), (3, 1)]
Output:
The two points with the minimum distance between them.
The minimum distance itself.
Closest pair: (1, 2) - (3, 1) Minimum distance: 1.4142135623730951

AIM: To find the closest pair of points in a set of 2D points

PROGRAM:

```python
import math

def euclidean_distance(p1, p2):
    return math.sqrt((p1[0] - p2[0])**2 + (p1[1] - p2[1])**2)

def closest_pair_brute_force(points):
    n = len(points)
    if n < 2:
        return None, float('inf')

    min_distance = float('inf')
    closest_pair = None

    for i in range(n):
        for j in range(i + 1, n):
            distance = euclidean_distance(points[i], points[j])
            if distance < min_distance:
                min_distance = distance
                closest_pair = (points[i], points[j])

    return closest_pair, min_distance

points = [(1, 2), (4, 5), (7, 8), (3, 1)]
closest_pair, min_distance = closest_pair_brute_force(points)

if closest_pair:
    print(f"Closest pair: {closest_pair[0]} - {closest_pair[1]}")
    print(f"Minimum distance: {min_distance}")
else:
    print("No points or less than 2 points provided.")
```

OUTPUT:
```
Closest pair: (1, 2) - (3, 1)
Minimum distance: 2.23606797749979
```

TIME COMPLEXITY: O(n^2)