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AI_Algorithms_Assignment

Question(1):

- O(3n) .....==> Linear
- O(3n^2) .....==> Polynomial
- O(2^n) .....==> Exponential
- O((3/2)^n) ....==> Exponential
- O(1000) .....==> Constanat
- O(1) .....==> Constant
- O((3/2)n) .....==> Linear
- O(3n^3) .....==> Polynomial

Question 2

1 < n < n^2 < n^3 < (3/2)^n < 2^n

Question 3

n+3 = 3n-1

n^2+2n-10 = n^2+3n

n^3*3n = n^4

log(X) = log(2X)

Question 4

- Time Complexity = O(sqr(n))

Question 5

- Time Complexity = O(n^2)

In [4]:
```
array=[5,6,2,8,9,2,6,2]
def min_distance(arr):
    Min =max(A)
    for i in A:
        for j in A:
            if i!=j and (i - j ) < Min and (i - j)>0:
                Min = i - j
    return Min

print(min_distance(array))
```

```
1
```

Question 6

In [ ]:
```

```

Question 7

In [12]:
```
def gcd_ecludian(a, b):
    if a == 0 :
        return b
    return gcd(b%a, a)


# Complexity O(log(n))

x = gcd_ecludian(31415,14142)
print(x)
```

```
1
```

In [ ]:
```

```