1. What index value does the third element of an array have?
third element is at index 2

2.Write the declaration for an array named quantities that stores 20 integers.
int[] quantities = new int[20];

3.Write a declaration for an array named heights storing the numbers 1.65, 2.15 ,and 4.95.
double[] heights = {1.65, 2.15, 4.95};

4.Write a for-each statement that displays the integer values stored in an array named grades.
int[] grades = {85, 92, 78, 95, 88};

```
for (int grade : grades) {
    System.out.println(grade);
```

6.How does passing an entire array to a method differ from passing a single element of the array?
When you're passing an entire array it allows for modifications to the original array's contents and provides access to all elements. But when you're just passing a single element typically passes a copy of the value allowing state modifications but not reassignments of the original array element.

7.Why are offset array indexes required in some cases.
This is sometimes required because how arrays are accessed in memory and can be required in certain scenarios for specific reasons.

8.What output is displayed by the statements below?
```
String name = "Elaine";
System.out.println(name.charAt(3));
```
i is index 3

10.Give an example of when a dynamic array might be a better structure choice over an array.
Let's say a shopping list where users can add or remove items, if they use a static array, it would have a fixed size, which would give the possibility of overflow error to occur. But if you use a dynamic array it can automatically resize itself as elements are added or removed.

11.How does the ArrayList indexOf() method determine equality between the object passed to the method and an element in the array?
By using the equals() method

12.How can the values of wrapper class objects be compared?
By using the equals() method