

1. The index value of the third element in an array is 2, as array indexing starts at 0.
2. `int[] quantities = new int[20];`
3. `double[] heights = {1.65, 2.15, 4.95};`
4. `for (int grade : grades) {
 System.out.println(grade);
}`

6. Passing an entire array: The reference to the array is passed, allowing the method to access and modify the array's contents. Passing a single element: The value of that specific element is passed, and modifications made inside the method do not affect the original array unless it is a reference type.

7. Offset array indexes are required when:

- Accessing a subset of an array's data (e.g., starting from a specific position).
- Shifting elements during operations like sorting or insertion to manage gaps or align data.
- Aligning data with an external source or data structure that uses a different starting index.

8. `String name = "Elaine";
System.out.println(name.charAt(3));`

- Output: i
This is because the `charAt(3)` method retrieves the character at index 3 of the string "Elaine," which is i.