

## (Notes) Class and Constructors

### Question 1 - Explain the difference between a class and an object in JavaScript.

#### Explanation:

A class is a blueprint that defines the structure and behavior of objects.

Objects are instances of classes that possess properties and methods defined by the class.

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### Question 2 - What's the Output?

#### Explanation:

The output will be:

```
console.log(square.area()); // 25
console.log(rect.area()); // 24
```

Here, `square` and `rect` are instances of the `Rectangle` class, and `area()` calculates their areas accordingly.

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### Question 3 - How does inheritance work in JavaScript classes?

#### Explanation:

Inheritance in JavaScript classes is achieved using the `extends` keyword.

It allows a subclass (child class) to inherit properties and methods from a superclass (parent class).

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### Question 4 - What's the Output?

#### Explanation:

The code will result in an error:

Uncaught SyntaxError: A class may only have one constructor

JavaScript classes can only have one constructor, so having multiple constructor declarations in the `Employee` class causes a syntax error.

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### Question 5 - Which approach is better and why?

#### Explanation:

The second approach is better because it registers the `getFullName` method in the prototype,

making it more memory-efficient than the first approach, which creates a closure for each object containing the method.

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#### **Question 6 - Implement this -**

##### **Explanation:**

The `Calculator` class defines methods for basic arithmetic operations (`add`, `subtract`, `multiply`, `divide`) and returns the result after each operation.

Method chaining is used to perform multiple operations in sequence.

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#### **Question 7 - Inheritance and Polymorphism**

##### **Explanation:**

The `Shape` class has an `area()` method that returns 0 by default.

Subclasses `Circle` and `Square` inherit from `Shape` and override the `area()` method to calculate their respective areas (circle's area using  $\pi r^2$  formula and square's area using `side × side` formula).

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#### **Question 8 - What are Getters and Setters in JS?**

##### **Explanation:**

Getters and setters are methods used to control access to the properties of a class.

They allow for more controlled modification and retrieval of property values, such as incrementing likes in a video or ensuring certain conditions are met before setting a property value.

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