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## Answer Key: Data Architects: 7th Grade JavaScript Logic & CSS Grid Quiz

Calculate DOM manipulations and layout proportions using advanced CSS Box Model and event listener logic for responsive digital environments.

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**1. Which CSS property combination would be most efficient for creating a responsive 3-column layout where the sidebars stay a fixed width but the middle column absorbs all remaining space?**

**Answer:** B) display: grid; grid-template-columns: 200px 1fr 200px;

The 'fr' unit in CSS Grid represents a fraction of the free space. By setting sidebars to pixels and the middle to 1fr, the middle dynamically fills the gap.

**2. In the JavaScript event loop, an 'event listener' attached to a button will execute its callback function immediately when the script loads, regardless of user interaction.**

**Answer:** B) False

Event listeners are asynchronous; the callback function 'listens' and only triggers when the specific event (like a click) occurs.

**3. To change the background color of an element with the ID 'header' to 'midnightblue' whenever a user's mouse enters the area, which JavaScript method is used to target the ID?**

**Answer:** C) document.getElementById('header')

getElementById is the most specific and performant way to select a unique element for manipulation in the DOM.

**4. If an HTML element has a set width of 300px, 20px of padding on all sides, and a 5px border, what is the total calculated space it occupies in the standard W3C Box Model?**

**Answer:** C) 350px

In the standard box model, Total Width = Left Border (5) + Left Padding (20) + content width (300) + Right Padding (20) + Right Border (5) = 350px.

**5. In CSS, which pseudo-class is utilized to apply styles to an anchor tag (<a>) only after the user has already clicked and navigated to that destination?**

**Answer:** C) :visited

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The :visited pseudo-class allows developers to provide visual feedback to users about their browsing history.

**6. Consider this JS code: let x = 10; x += 5; x = x \* 2; What is the final value of x?**

**Answer:** D) 30

Starting at 10, += 5 makes it 15. Then 15 \* 2 equals 30.

**7. In Semantic HTML, using the <section> tag provides the exact same SEO and accessibility benefits as using a <div> tag.**

**Answer:** B) False

Semantic tags like <section> provide context to screen readers and search engines, whereas <div> is a generic container with no inherent meaning.

**8. Which of the following JavaScript statements would successfully hide an element from view but keep its space reserved in the page layout?**

**Answer:** B) element.style.visibility = 'hidden';

display: none removes the element from the flow. visibility: hidden hides it while maintaining the physical space it occupies.

**9. When creating an internal link to a specific part of a page, what HTML attribute must be present on the target element to match the 'href' value (e.g., <a href='#bio'>)?**

**Answer:** B) id='bio'

The hashtag in a URL fragment references a unique ID on the page, allowing the browser to jump directly to that element.

**10. External CSS files are linked within the <body> section of an HTML document to ensure the styles load after the content.**

**Answer:** B) False

CSS files are typically linked in the <head> section to ensure the browser knows how to style the elements before they are rendered on the screen.