

Geometric Design - Quiz

1. What is the primary goal of highway geometric design?
 - A. Maximizing construction speed
 - B. Providing safe and efficient roadways
 - C. Increasing vehicle horsepower
 - D. Eliminating all roadway curves
2. Which of the following is NOT a component of roadway alignment?
 - A. Horizontal alignment
 - B. Vertical alignment
 - C. Cross-sectional alignment
 - D. Structural alignment
3. In U.S. customary units, one station represents:
 - A. 10 ft
 - B. 50 ft
 - C. 100 ft
 - D. 1,000 ft
4. The Point of Vertical Curvature (PVC) represents:
 - A. The highest point on a vertical curve
 - B. The intersection of two vertical tangents
 - C. The beginning of a vertical curve
 - D. The end of a vertical curve
5. Vertical curves are generally modeled using which type of mathematical function?
 - A. Linear
 - B. Circular
 - C. Parabolic
 - D. Exponential
6. Stopping Sight Distance (SSD) consists primarily of:
 - A. Passing distance only
 - B. Curve length only
 - C. Perception-reaction distance and braking distance
 - D. Lane width and shoulder width

7. For sag vertical curves, SSD design is primarily governed by:

- A. Daytime visibility
- B. Roadway drainage
- C. Headlight sight distance at night
- D. Superelevation rate

8. Calculate the minimum length of a crest vertical curve with $A = 6\%$ and $SSD = 645$ ft.

- A. 860 ft
- B. 960 ft
- C. 1000 ft
- D. 1160 ft

9. The minimum radius of a horizontal curve depends on all of the following factors, except:

- A. Design speed
- B. Super elevation
- C. Side frictional force
- D. Driver's eye height

10. Which of the following statements is true?

- A. SSD is always greater than PSD.
- B. Vehicle cornering capability is a concern in the design of vertical curves.
- C. While driving on a roadway, the reaction time for an unexpected event is 2.5 seconds.
- D. Sag curves are always longer than crest curves.