

Road Scholar Competition Study Guide Answers

State Highway Map

1. Map bar scale
2. distances between junctions & towns (black numbers)
red pointers
subtract exit numbers
3. map inset
4. the central part of the state
5. several highways sharing the same roadway
6. by designation (interstate, US, state, county) or by capacity (multi-lane divided, principal through, two-lane and so on)

(Note: see the map legend.)

7. major roads within the given area, freeway interchange detail, points of interest, landmark structures/buildings, bridge names, airport runway patterns, parks, municipality boundaries, golf courses, colleges/universities

(Note: other answers are possible. This illustrates the varying amount of detail that can be shown based on map scale.)

8. east-west
9. north-south
10. county seat
11. state capital
12. beltway, bypass, outer belt, circumferential highway
13. to provide access to the main/central/core business district (restaurants, hotels, shops, etc.) of a town that would normally be bypassed by the road
14. contains no elevation data (contours, spots, bench marks)

Topographic map

1. downhill side of a depression contour
2. they are calculated the same way, but expressed differently (stream: ft/1000ft, all others: ft/100ft or %)
3. (contour) turnbacks
4. upstream (uphill)
5. a point whose elevation has been precisely determined
6. cliff/bluff/escarpment
7. profile plot
8. "cut-away" view or "cross-section" view, variation in elevation along a specified linear path
9. a fresh-water lake has streams flowing both into and out of it, whereas a salt-water lake has streams flowing only into it (no outlet); stream flow direction can be determined by contour turnbacks, or by elevation difference

10. hills, saddles, depressions/basins, cliffs, ridges, quarries, strip mines, sink holes (karst topography), stream valleys, waterfalls
11. Mean Sea Level
12. it is a common reference; it is also a fixed reference-it does not vary appreciably over time
13. Equator
14. Prime Meridian (Greenwich Meridian)
15. integral or whole number
16. same; contours are paired across drains (last contour crossed descending one side of stream valley is first one crossed ascending other side)
17. no (no T's, X's, or Y's, and no figure-8's; also, contours are truncated at cliff symbol)
18. Quadrangle map (7.5' – series map)

Geodesy

1. straight line
 2. projection
 3. distortion of shape, direction, and scale (size and distance)
 4. the distortion is such that an infinitely tall map would be required
 5. polar projection
 6. cylindrical projection
 7. conformal – scale is the same in every direction from any point
 equal-area – areas on map are proportional to corresponding areas on Earth
 equidistant – distances are true only from center of projection or along a special set of lines
 rhumb line – line cutting all meridians at the same angle; line of constant direction (not necessarily the shortest distance between two points)
- (Note: there is no projection that is conformal, equal-area, and equidistant.)
8. magnetic declination
 9. to calculate the flight azimuth (geographic or magnetic) from North reference between his origin and destination points
 10. 9 parts; 2.5' by 2.5'
 11. to describe accurately the location of a parcel of land, and to ease inventory and transfer of land
 12. 6 miles x 6 miles; 36 square miles
 13. 1 mile x 1 mile; 1 square mile
 14. 640 acres
 15. ½ mile x ½ mile; ¼ square mile or 160 acres