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1. Raster graphics
 - A. is the same as vector graphics
 - B. uses discrete pixels to represent images
 - C. requires a GPU
 - D. is arranged as rows and columns

2. The area of a given triangle is 10.0. A point within the triangle allows us to divide the triangle into sub-triangles, two of which have areas 1.5 and 5.0. What are the 3 barycentric coordinates of the point?
 - A. 1.5, 5.0, 3.5
 - B. 0.15, 0.5, 0.35
 - C. 1.5, 5.0, 10.0
 - D. 0.015, 0.05, 0.035

3. The dot product of 2 unit vectors is...
 - A. a perpendicular vector
 - B. a vector
 - C. a scalar or single value
 - D. the value zero

4. The length of a normalized vector is:
 - A. shorter than the original length
 - B. longer than the original length
 - C. always the same length
 - D. different for each vector

5. What is the dot product of two perpendicular vectors?
 - A. a parallel vector
 - B. zero
 - C. a perpendicular vector
 - D. less than zero

6. Given 2D vectors: $P = \{3, 4\}$ $Q = \{5, 6\}$
What is the dot product (P dot Q)?
 - A. 38
 - B. 42
 - C. 39
 - D. 18

7. Ray tracing
 - A. is an objects first strategy
 - B. is a pixels first strategy
 - C. is supported by OpenGL
 - D. often produces photo-realistic images

8. Ray tracing sends rays through each screen pixel. If all rays are parallel to each other...
 - A. the rendered scene will have perspective.
 - B. it is an orthographic projection.
 - C. the origin of each ray is the same.
 - D. the origin of each ray is different.

9. Using the following components, how would you describe a point along the ray.
O = ray origin
D = ray direction
t = distance
- A. $OD + t$
 - B. $O + Dt$
 - C. $O + D + t$
 - D. $Ot + D$
10. Which of the following image types are considered to have “lossy” compression?
- A. Jpeg
 - B. Gif
 - C. Png
 - D. PPM
11. Double-buffering solves what problem in computer graphics?
- A. slow frame rate
 - B. buffer overflow
 - C. flickering
 - D. single buffer syndrome
12. A normal in computer graphics is
- A. a vector parallel to a surface
 - B. a vector perpendicular to a surface
 - C. a regular light source
 - D. an average color
13. Why is texture mapping a valuable component of graphics rendering?
- A. It makes colors transparent
 - B. It adds great visual detail to simple surfaces and shapes
 - C. It maps the logic of your program code
 - D. It doubles the number of colors on the screen
14. A plane can be defined by
- A. a point and a normal
 - B. a center and a radius
 - C. three points
 - D. a sphere and a point
15. The three major types of graphics transformations are
- A. matrix, vector, and array
 - B. up/down, left/right, and front/back
 - C. translation, rotation, and scaling
 - D. in, out, and around
16. Write a boolean expression that will evaluate to true if the values of 3 floating-point variables u, v, w, are valid barycentric coordinates?
- A. $(1.0 == u - v - w)$
 - B. $(u + v - w == 0.0)$
 - C. $(u + v + w <= 1.0)$
 - D. $(u + v + w == 1.0)$

17. The area of a triangle is $\frac{1}{2}$ base times height. What is the area of a triangle with (x,y) vertices: (1,1), (7,1), (7,6)?
- A. 30
 - B. 7.5
 - C. 15
 - D. 13
18. Your Bresenham line function has an error term. How should the error term be initialized?
- A. 0
 - B. half of the X difference
 - C. half of the Y difference
 - D. 1