Game Math Final Tips

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Here are some topics you should especially review before the final.

Chapter 1. Nothing too complicated, you mainly just need to know the notation and definitions regarding sets. Know the definition of a function: what is and what is not a function.

Chapter 2. Know how to fit an exponential curve to a set of data points. Know how to read and interpret 2D and 3D graphs.

Chapter 3. Know the definitions related to polynomials (e.g., degree). Know how to fit a polynomial through a set of given data points. Know how to use the polynomial to do interpolation.

Chapter 4 and 5. Know how to convert between polar coordinates and Cartesian coordinates. Know how to solve right triangle problems. For example, you'll be given some known values in a right triangle, and be asked to solve for the unknown; the unknown may be any side of the triangle or an angle.

Chapter 6. Know about points, lines, and how to find the distance from a point to a line. Know how to find where two lines intersect. Know how to find the points where a line intersects a parabola. Know how to find the angle between lines.

Chapter 7. Know how to do the basic vector operations: addition, scalar multiplication, dot product, cross product, projection, normalization, etc. Know how to find the angles between two vectors. You should also be familiar with the basic algebraic rules for these operations (e.g., is the operation associative or commutative?).

Chapter 8. Know how to add and multiply matrices. Know how to represent systems of linear equations with matrices.

Chapter 9. Given a linear transformation, know how to find its matrix representation. Know how to find the inverse of rotation matrices.

Chapter 10. Given a specific quaternion, know how to determine the axis and angle of rotation it represents.