

This Homework is due in class on Friday October 23rd. It will be graded. Make sure you include your name and section number on your answer sheet.

1. The parametric curve $x = u^2, y = u^3$ passes through the origin in (x, y) space. What is its parametric derivative at the origin? What is its tangent at the origin?
2. Each point on a parametric curve $P(u)$ is the image of some u value. Is the u value unique? i.e. can there be points on a curve that are images of more than one value of u ? Explain or give an example.
3. Start with the vertices of a unit cube in 2D, $(0, 0)$, $(0, 1)$, $(1, 0)$ and $(1, 1)$. Apply subdivision with the mask $1/2(1, 1)$. What is the final form of the curve? Sketch it inside the square.