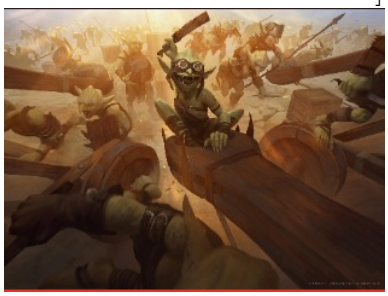
3B - Calculus for Social and Life Sciences
Week 2

Contact Information	
TA's name:	Trevor Klar
Email:	trevorklar@math.ucsb.edu
Office hours:	Wednesdays 2:00-3:00
Math Lab hours:	Tuesdays 3:00-5:00
Office:	South Hall 6431x

1. I was born on the second day
of the last week
of the second to last month
of the last year
of the second to last decade
of the last century
of the second millennium
of our calendar system.

What is my birthdate?

2. A goblin catapult sits at at the top of a 200 foot cliff, overlooking the enemy. When it launches, the height of its "projectile" (see figure) is given by the equation $f(t) = -16t^2 + 200$, where t is the time in seconds since launch and $f(t)$ is the height of the projectile above the enemy. How long will we be able to hear the projectile cackling maniacally until it strikes the target? [Hint: We want to know what value of t makes $f(t) = 0$, so find the inverse of the function.]



3. A really rich guy wants to decorate his garage door with 14K gold Christmas tree lights, illuminating the top and sides of his door. His door has an area of 112 square feet, and the lights cost $295 per meter. Express the total cost of the Christmas lights in terms of the width of the garage door. (There are about 3.28 feet in 1 meter).

4. Solve $\dfrac{x^2-3}{x+2} - x = 4$. [Hint: First get a common denominator.]

5. I have three numbers. The middle one is half the biggest one, and the smallest one plus the middle one is four less than the biggest one. The biggest one plus the middle one is five times the smallest one. What are the numbers?