

## Calculus Class Worksheet #5a Unit 1 \_\_\_\_\_

A steel ball is propelled upward in such a way that its height,  $h$ , in meters, above the ground after  $t$  seconds is given by the function  $h = f(t) = -5t^2 + 30t + 35$ .

Answer the following questions. (Include appropriate units.)

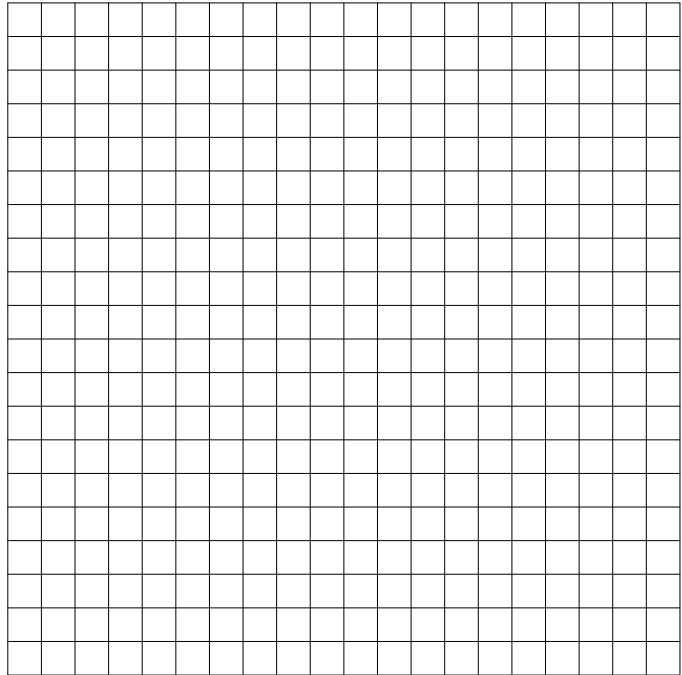
1. Express the velocity of the ball as a function of  $t$ .

$$V = f'(t) = \underline{\hspace{2cm}}$$

2. Fill out the table below.

$t$ seconds	$f(t)$ meters	$f'(t)$ meters per second
0		
1		
2		
3		
4		
5		
6		
7		

3. Graph function  $f$  below.



4. How high above the ground is the ball after 2 seconds? \_\_\_\_\_
5. What is the velocity of the ball after 2 seconds?  
(Velocity includes both speed and direction.) \_\_\_\_\_
6. How high above the ground is the ball after 5 seconds? \_\_\_\_\_
7. What is the velocity of the ball after 5 seconds? \_\_\_\_\_
8. What is the maximum height of the ball in its flight? \_\_\_\_\_
9. How fast is the ball moving as it hits the ground? \_\_\_\_\_