

Show all work clearly and in order (on this sheet or an attached sheet) and circle your final answers.

Justify your answers algebraically whenever possible. Work without justification may not receive credit.

You have 25 minutes to take this 10 point quiz.

1. (3 points) Compute $\frac{d}{d\clubsuit} [\sin(\sqrt[3]{\clubsuit})]$.

2. (3 points) Compute $\frac{d}{dz} \left[\frac{z^2}{\sin(\cos(z))} \right]$.

3. (4 points) Suppose that a projectile has position function measuring its height at time t :

$$s(t) = -16t^2 + 48t.$$

This function starts at time $t = 0$ and is measured in feet.

1. What is the velocity of the projectile at time t ?
2. What is the acceleration of the projectile at time t ?
3. What time does the object hit the ground?
4. What is the velocity of the projectile when it hits the ground?