

Show all work and circle/box your final answer. All answers must be simplified unless stated otherwise. If you finish early, you may leave with my approval.

**1.** (*0 points*) A rock thrown vertically upward from the surface of the moon at a velocity of 24 m/sec (about 86 km/h) reaches a height of  $s = 24t - 0.8t^2$  meters in  $t$  seconds.

- (a) Find the rock's velocity and acceleration at time  $t$
- (b) How long does it take the rock to reach its highest point?
- (c) How high does the rock go?

**2.** (0 points) Find the derivative of the following functions: (You do not need to simplify)

(a)  $f(x) = \frac{4x - 2}{2x^2}$

(b)  $f(x) = (2x + 3)(4x + 5)^7$

(c)  $f(x) = \sqrt{\sin(2x)}$