Quiz #27   Name: _____ Key _____

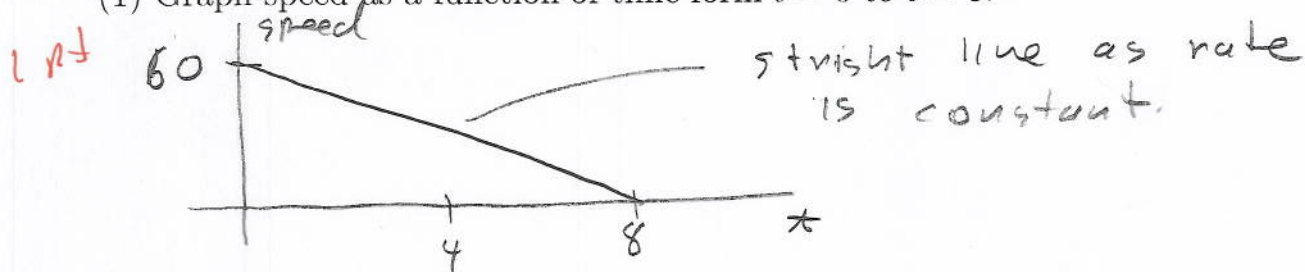### You must show your work to get full credit.

A car is moving at 60 meters/second with the driver applies the breaks. If the speed decreases at a constant rate (that is constant negative acceleration) and the car comes to rest after 8 seconds

(1) Graph speed as a function of time form $t = 0$ to $t = 8$.

1 pt

straight line as rate is constant.

(2) How far did the car travel between the time the brakes were applied to the time that it stopped?

2 pts

Distance = area under rate graph

Distance covered = __ 240 meters __

$$= \text{Area} \left(60 \diagdown_{8} \right) = \tfrac{1}{2}(60)(8) = 4(60) = 240$$

(3) If the car was moving at 120 meters/second when the brakes we applied and the speed decreases at the same constant speed, how far does travel been the time the brakes were applied to the time it stopped?

2 pts

Distance covered = __ 960 __

It will take twice as long to stop (using parallel lines)
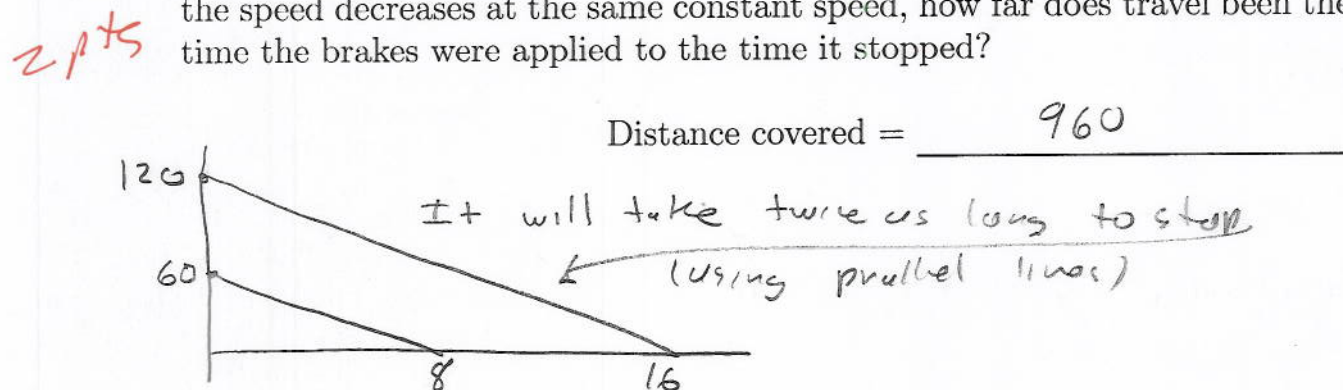
$$\text{Distance} = \text{Area} \left(120 \diagdown_{16} \right) = \tfrac{1}{2}(120)(16) = 960$$

(four times as far).