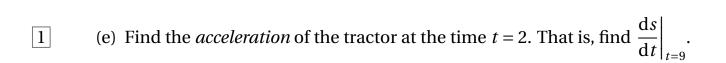
In class work 6 has questions 1 through 2 with a total of 9 points. Turn in your work at the end of class *on paper*. This assignment is due *Wednesday 27 September 13:15* PM.

- 1. As a function of time t (seconds), the position s (feet) of a 1952 Farmall 44 horse-power tractor moving along a flat piece of Floyd's Creek Road is given by  $s = 2t^{3/2}$ . This relation holds for  $1 \le t \le 9$ .
- (a) Find the *displacement* of the tractor on the time interval [1,9]. That is, find  $s|_{t=9}-s|_{t=1}$ .

(b) Find the *average velocity* of the tractor on the time interval [1,9]. That is, find  $\frac{s|_{t=9}-s|_{t=1}}{9-1}$ .

(c) Find the *velocity* of the tractor at the time t = 1. That is, find  $\frac{ds}{dt}\Big|_{t=1}$ .

(d) Find the *velocity* of the tractor at the time t = 9. That is, find  $\frac{ds}{dt}\Big|_{t=9}$ .



[1] (f) Show that av, where v is the velocity and a is the acceleration of the tractor is a constant for times t in the interval [1,9].

2. The position *s* of my pet American Fuzzy Lop rabbit Wilber moving along a line as a function of *t* is  $s = \frac{1}{2}t^2 - 2t + 4$ , where we consider positive values of *s* to be to the

- right and negative to the left.
- 1 (a) When is Wilber moving to the right? That is, when is  $\frac{ds}{dt} > 0$ ?

(b) When is Wilber moving to the left? That is, when is  $\frac{ds}{dt} < 0$ ?

1 (c) Find Wilber's *speed* when t = 2.