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The right way to begin a calculus book is with calculus. This chapter will jump

directly into the two problems that the subject was invented to solve. You will see

what the questions are, and you will see an important part of the answer. There are

plenty of good things left for the other chapters, so why not get started?

The book begins with an example that is familiar to everybody who drives a car.

It is calculus in action-the driver sees it happening. The example is the relation

between the speedometer and the odometer. One measures the speed (or velocity);

the other measures the distance traveled. We will write v for the velocity, and f for

how far the car has gone. The two instruments sit together on the dashboard:

Fig. 1.1 Velocity v and total distance f (at one instant of time).

Notice that the units of measurement are different for v and f.The distance f is

measured in kilometers or miles (it is easier to say miles). The velocity v is measured

in km/hr or miles per hour. A unit of time enters the velocity but not the distance.

Every formula to compute v from f will have f divided by time.

The central question of calculus is the relation between v and f