end it is 32 feet per second. The increase has been uniform, and so the average is $\frac{1}{2}(0+32)=16$ feet per second. Hence, the space passed over is $1 \times 16=16$ feet.

It continues to fall, and at the end of 2 seconds the speed is 64 feet per second. The average speed for the first two seconds is $\frac{1}{2}(0+64)=32$ feet per second, and as the time is 2 seconds, the space is $2 \times 32=64$ feet.

At the end of 3 seconds the velocity is 96 feet per second, and the average is $\frac{1}{2}(0+96)=48$ feet per second. The space passed over in these 3 seconds $=3 \times 48=144$ feet.

In this way we can calculate the space passed over during any time.

Next, take the case of a body thrown upwards. Let the initial speed be 128 feet per second. At the end of the 1st second this is reduced by 32 feet per second, and hence the speed at that moment is 96 feet per second. The reduction in speed has been uniform, and hence the average speed during this second was $\frac{1}{2}(128+96)=112$ feet per second. Hence during this 1st second the space passed over is $1 \times 112=112$ feet.

During the 2nd second the speed will be further reduced by 32 feet per second, and at the end of it, will be 64 feet per second. The average speed, then, for the first two seconds is $\frac{1}{2}(128+64)=96$ feet per second, and the space passed over in these 2 seconds $= 2 \times 96 = 192$ feet.

During the 3rd second the speed will be further reduced by 32 feet per second, and at the end of it, will be 32 feet per second. The average speed for the first three seconds is $\frac{1}{2}(128+32)=80$ feet per second, and the space passed over in these 3 seconds $=3 \times 80=240$ feet.

The velocity still possessed is 32 feet per second. This will be lost in 1 second; that is, the body will rise for a total of 4 seconds. During this time the average velocity