For the problems below, **approximate the acceleration of gravity as -10 m/s^2**. (We're on Earth.) The point of this practice is not highly precise answers but rather building up your intuition and mental-math abilities. (And let's not bother putting a directional **j** aside each vector quantity.)

1. A ball was thrown upward at 40 m/s. (This is almost 90 mph, which is ridiculous. Some baseball players can throw a ball this fast, although not upward.) The data table below shows the velocity at one-second intervals.

time (s)	velocity (m/s)
0.0	40.00
1.0	30.00
2.0	20.00
3.0	10.00
4.0	0.00
5.0	-10.00
6.0	-20.00
7.0	-30.00
8.0	-40.00

   a. At what time has the ball reached its peak?
   b. At its peak, what is the ball's *acceleration*?
   c. What is the ball's displacement in that first second?
   d. What is the ball's total displacement, over the 8.0 seconds?
   e. What total distance (not displacement) does the ball travel, over the 8.0 seconds?

2. A ball was thrown upward at 60 m/s.
   a. How many seconds does it take to reach its peak?
   b. How many seconds does it take to return to its starting height?
   c. What is the acceleration of the ball at 4.0 seconds?
   d. What is the velocity of the ball at 8.0 seconds?
   e. How high does the ball travel? (This is another way of asking for its displacement, when it's at its peak.)
   f. What is the displacement of the ball between t = 1.0 and t = 3.0 seconds?

3. A ball was thrown downward at 20 m/s, over a deep hole.
   a. What is the velocity of the ball at 3.0 seconds?
   b. What is the acceleration of the ball at 3.0 seconds?
   c. What is the displacement of the ball at 3.0 seconds?

4. A ball was thrown upward at 25 m/s.
   a. How many seconds does it take to reach its peak?
   b. At its peak, what is the ball's acceleration?
   c. At its peak, what is the ball's velocity?
   d. What is its velocity upon returning to its original height?
   e. How high does the ball travel?
   f. What is the ball's displacement at 4.0 seconds?