R: Kinematic Equation backwards 2

Part 3: Two-direction problems that concern position, velocity, and acceleration.
You must use all of the kinematic equations to solve these problems.

Name	**Equation**
Definition of Acceleration	$v_f = v_i + a \cdot \Delta t$
The King of Kinematic Equations	$\Delta x = v_i \cdot \Delta t + \frac{1}{2} a (\Delta t)^2$
The Average Velocity Formula	$\Delta x = \left(\frac{v_i + v_f}{2} \right) \Delta t$
No-Time Equation	$v_f^2 = v_i^2 + 2a \cdot \Delta x$

1. An object is moving at a speed of 2 m/s to the left. Its position is 3 m to the right of the origin.
It is accelerating at a rate of 3 m/s^2 to the right.
After 2 seconds….

What is the position of the object in relation to the origin (magnitude and direction)?

What is the velocity of the object (magnitude and direction)?

Is the object speeding up or slowing down?

2. An object is moving at a speed of 3 m/s to the right. Its position is 4 m to the left of the origin.
It is accelerating at a rate of 1 m/s^2 to the left.
After 3 seconds….

What is the position of the object in relation to the origin (magnitude and direction)?

What is the velocity of the object (magnitude and direction)?

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Is the object speeding up or slowing down?

3. An object is moving at a speed of 3 m/s^2 to the left. Its position is 5 m to the right of the origin. Some time later, it has a speed of 6 m/s^2 to the right, and its position is 15 m to the right of the origin.

What is the acceleration of the object? (magnitude and direction)

Coming soon to this packet:

- questions in which you need to complete a table….finding velocity and position at several different times
[and eventually, translate this into a table]

- There are *many* applications of this knowledge. Essentially, any time something does something other than move forward and speed up, you need this content to analyze its motion.