Distance, Velocity and Acceleration

Open the tns file d-v-a

1. Press ⌂.
2. Press 7 to select My Document.
3. Arrow down to MyLib and press the right arrow to expand the menu.
4. Arrow down to d-v-a and press ⏎. (Figure 1)
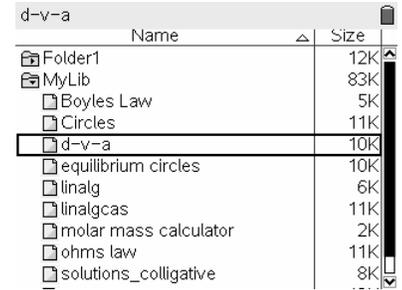
5. Press the control button (ctrl) and the right arrow ▸ on the Nav Pad to move to page 1.2.
6. Repeat step 5 to move to page 1.3.

Change the values of do, vo and g to see what effect they have on the graph.

7. Click ⊚ on **do** to highlight it and click again to open it for editing.
8. Enter a new value for **do** and press ⏎.
9. Change **do** again and record the effect do has on the graph.
10. Repeat by changing the value of g and Vo. Record the effects of each variable.
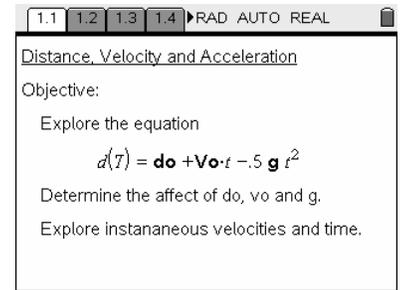
Determine the instantaneous velocity at any point on the graph.

11. There is a tangent line on the curve in the lower left part of the graph. Press (esc).
12. Move the cursor to the point that connects the tangent to the curve.
13. Press the click button ⊚ and hold it until the hand closes on the point.
14. Use the arrow keys to move up the parabola.
15. Observe the change to vel as you move the tangent.
16. What do the points that are generated represent as you pull the tangent across the graph?
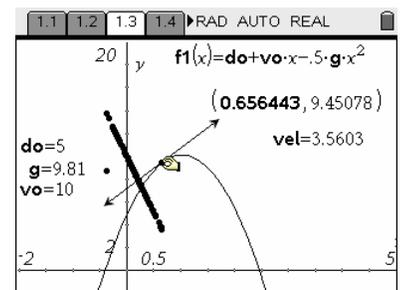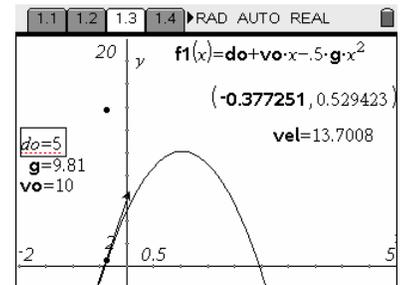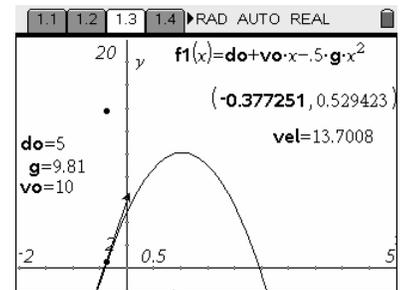
Determine the equation of the velocities as they relate to time.

Time is stored in a list named time and velocity is stored in a list named velocity.

17. Press ⌂
18. Press 1 to add a calculator.
19. Press (menu).
20. In the 7:Statistics menu select 1:Stat Calculation.
21. In the Stat Calculation menu select 3:Linear Regression (mx+b)

22. Press the down arrow ▾ on the Nav Pad and select Time.
23. Press the (tab) key to move to the Y List and press the down arrow and select Velocity.
24. Press the (tab) key until OK is highlighted then press (enter).