What's That Graph?

Can you match the processes to their graphs?

1. A cup of tea is made and the temperature measured in degrees Celsius every second. What would the temperature - time graph look like?

2. The height of the valve on a bicycle tyre above the ground is measured after each centimetre that the bicycle travels forwards. What would the height - distance graph look like?

3. I throw a tennis ball straight up into the air and catch it. The height of the ball from the ground is measured over the time of the journey using freeze-frame photography. What would the height - time graph look like?

4. I measure several objects using inches and then using metres, plot them on a scatter graph, and join the points. What would the metres - inches graph look like?

5. I jump out of a plane and the distance fallen from the plane is measured every 0:1 second until I open my parachute. What would the distance fallen - time graph look like whilst in freefall?

6. I drive at 70 miles an hour along the motorway and note the reading on my odometer (mile counter) every 5 minutes. What would the odometer reading - time graph look like?

7. I blow up a roughly spherical balloon using a balloon pump. After each pump I measure the radius of the balloon in centimetres. What would the radius - number of pumps graph look like?

8. I suck water through a straw out of a large beaker at a constant rate and measure the volume of liquid remaining at various times. What would the volume-time graph look like?

Can you match the equations to the processes and graphs?

$$y = A\sqrt[3]{x}$$

$$y = A\sin(Bx) + A$$

$$y = Ax + B$$

$$y = \frac{A}{e^x} + B$$

$$y = Ax^2$$

$$y = Ax^2 + Bx + C$$

$$y = Ax$$

$$y = Ax + B$$