The diagram represents a free body diagram (FBD) at points A, B, and C. The forces acting on these points are labeled with "N" and "t" indicating normal forces and time, respectively. The equation \( \mathbf{FBD} @ A, B, C \) is written at the top left.

- \( m = \) mass
- \( v_f = \) final velocity (at \( t = 20 \text{sec} \))

A spring is attached to point B with a length of 29.9 m, labeled as uncompressed at point. The force constant \( k = 6000 \text{N/m} \) is given for the spring.

The distance \( S = 32 \text{m} \) is shown with a label indicating it is to the spring (1), at the spring (2), and off the spring (3). The diagram indicates the path from A to B, with C being a point on the compressed spring.