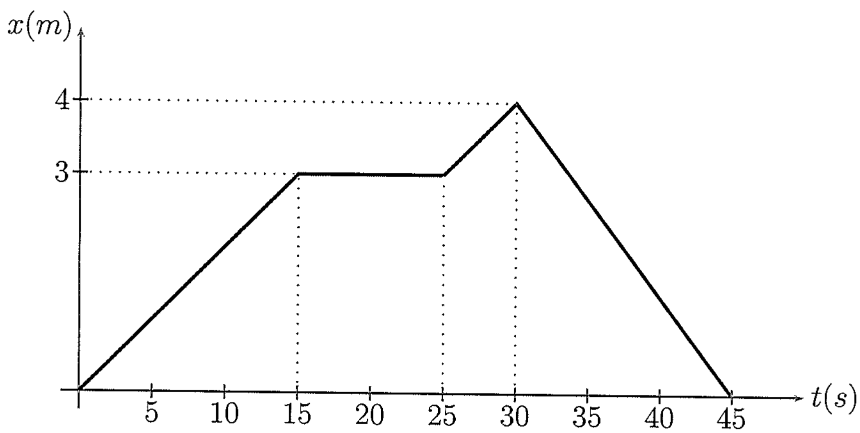
PHYSICS 151 TEST 1

Name: ____________________

The graph below shows the position-versus-time graph for a rabbit.



(a.) Did the rabbit ever stop during its motion? If so, at what time or times did the rabbit stop? Explain how you determined whether or not it stopped. *(2.5pts)*

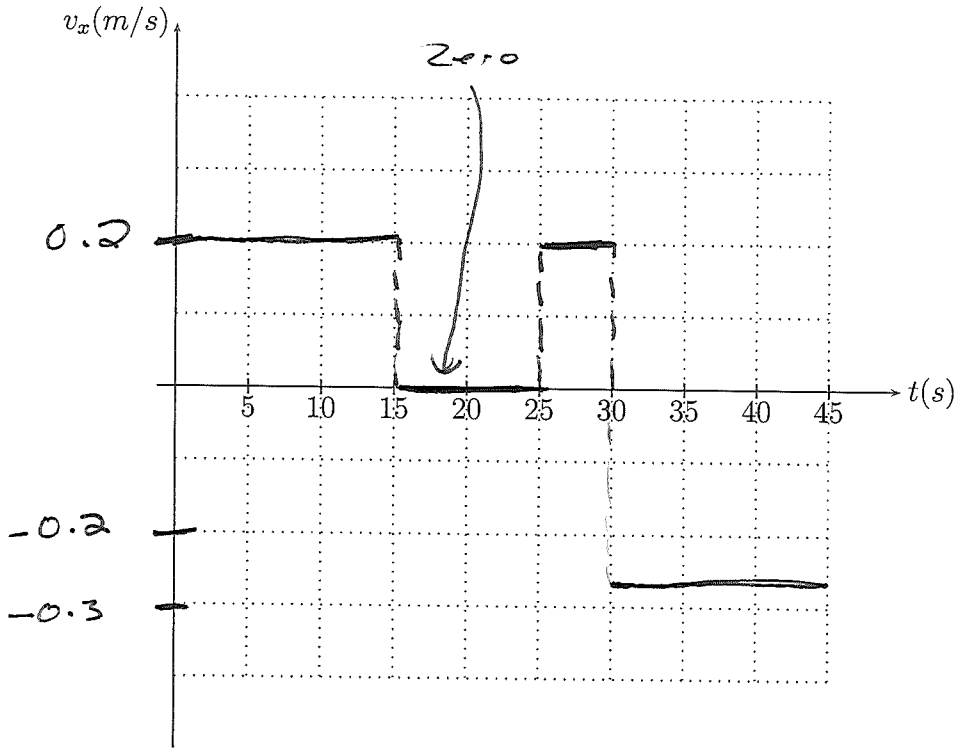
Yes, the Rabbit stopped for All times from 15s to 25s. We Know this because of the Horizontal position graph.

↳ position is not changing.

(b.) Did the rabbit ever change direction during its motion? If so, at what time or times did the rabbit turn around? Explain how you determined whether or not it turned around. *(2.5pts)*

Yes, the rabbit turned around at EXACTly $t = 30s$. We Know this because the slope changes from positive to Negative there.

(c.) On the axes provided, sketch the velocity-versus-time graph for the rabbit. For full points, your graph must have the correct numerical values of the rabbit's velocity. Show any calculations you do in the area below the graph. *(5pts)*



From 0 to 15s : V_x = Slope = $\frac{3m-0}{15s-0} = \frac{3m}{15s} = 0.2m/s$

↳ Constant so horizontal lines on graph

From 15s to 25s : $V_x = 0$ As discussed in part c

From 25s to 30s : $V_x = \frac{4m-3m}{30s-25s} = \frac{1m}{5s} = 0.2m/s$

From 30s to 45s : $V_x = \frac{0-4m}{45s-30s} = \frac{-4m}{15s} = -0.266667m/s$