On a spacetime diagram whose axis are labeled x (horizontal) and ct (vertical), at event at with x = 3m and $t = 10^{-8}$ s should be plotted at a point:

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- B) (x, ct) = (3 m, 3 m)
- C) (x, ct) = (3 m, 1 m)
- D) (x, ct) = $(10^{-8} s, 10^{-8} s)$
- E) $(x, ct) = (10^{-8} s, 3 m)$

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On the diagram there are two events. The dashed line represents a path light might take. Does there exist a frame of reference in which these two events are simultaneous?



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You just need to draw the x-axis to go through the two points this is possible as long as the slope is less than 45 degrees, or, equivalently, $s^2 < 0$