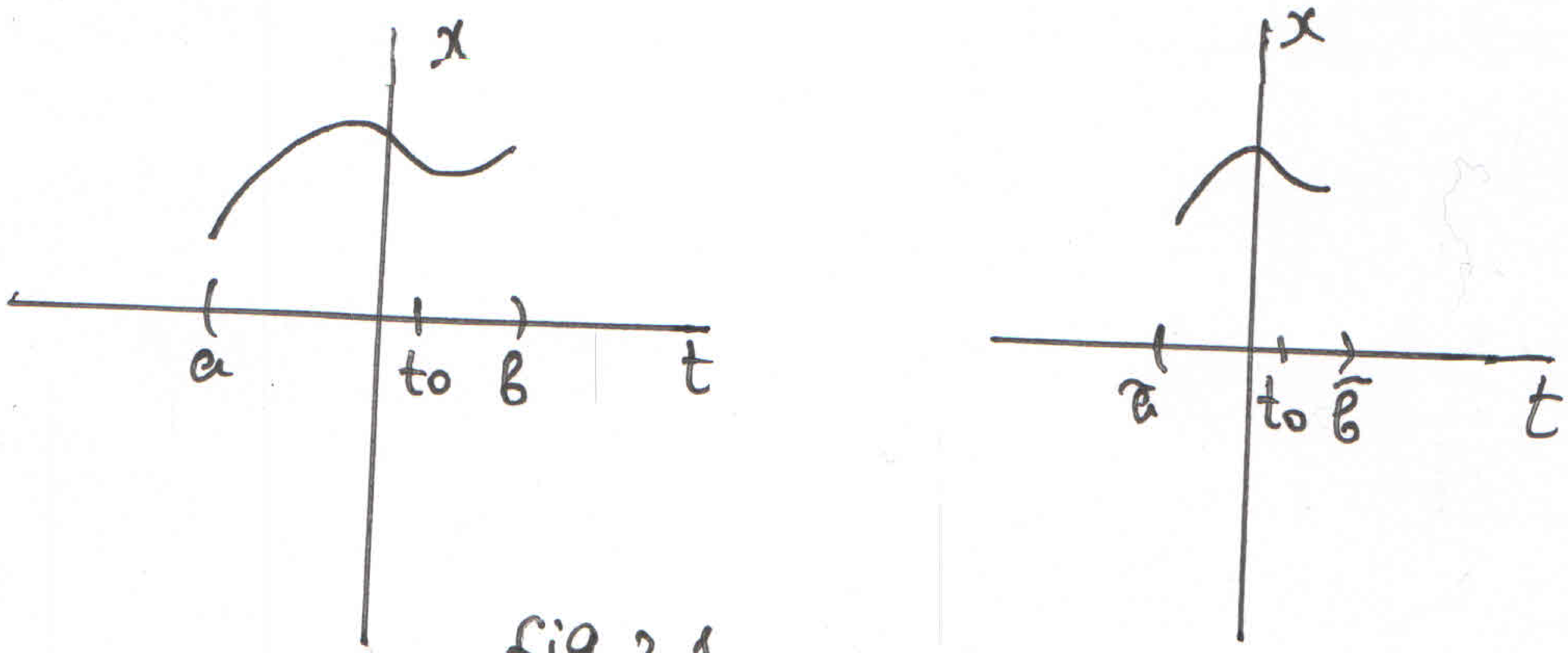


fig. 2.1
Restriction of solution to a smaller interval is <u>another</u> solution (a "part" of the first one)

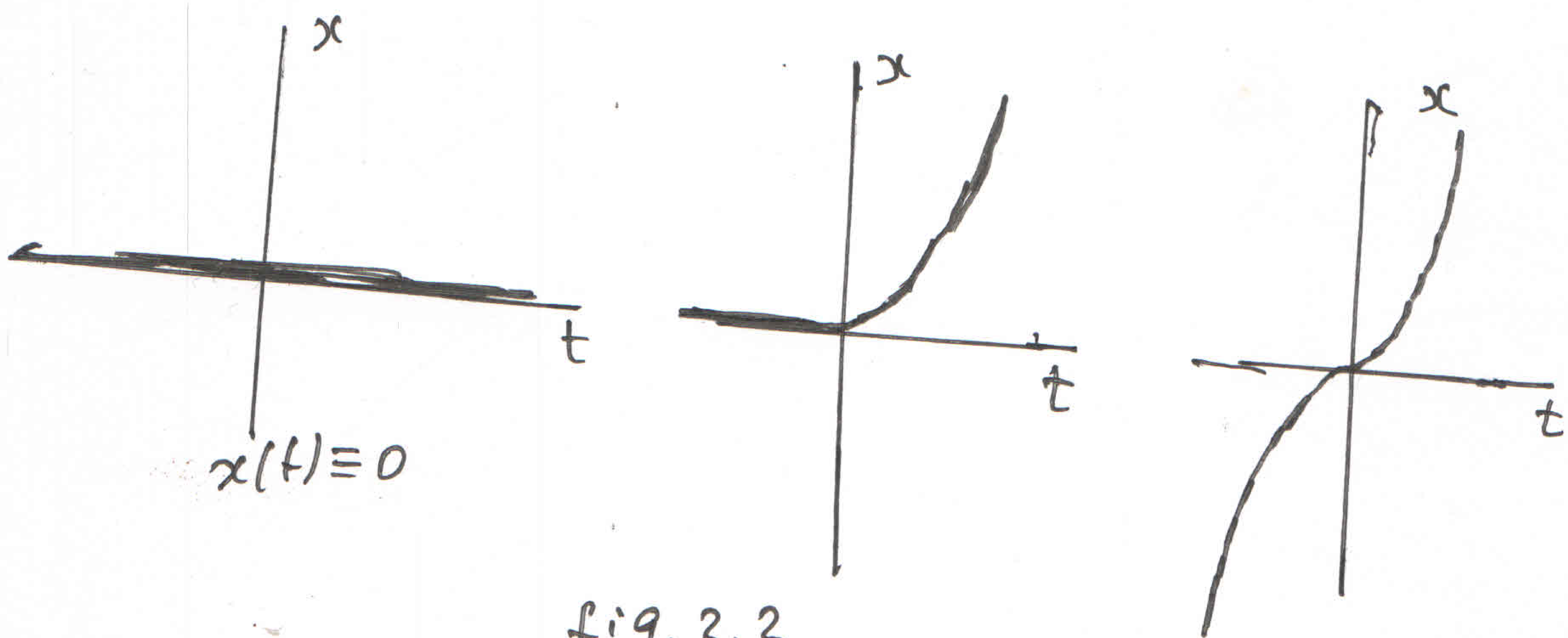


fig. 2.2
Three solutions of the equation $x' = \sqrt{|x|}$ satisfying the condition $x(0)=0$.

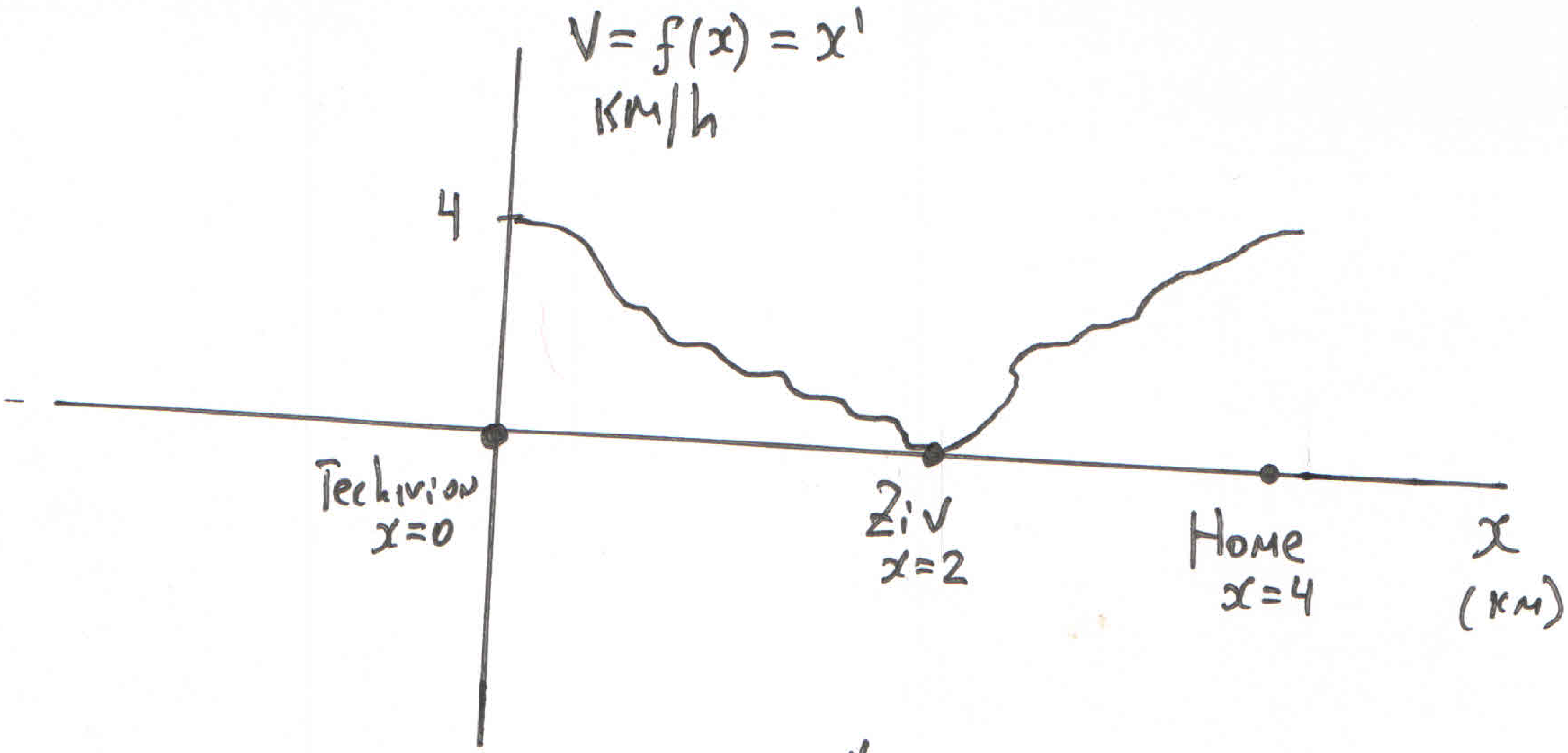


fig. 2.3. The way home from Technion: the dependence of the velocity from the distance.

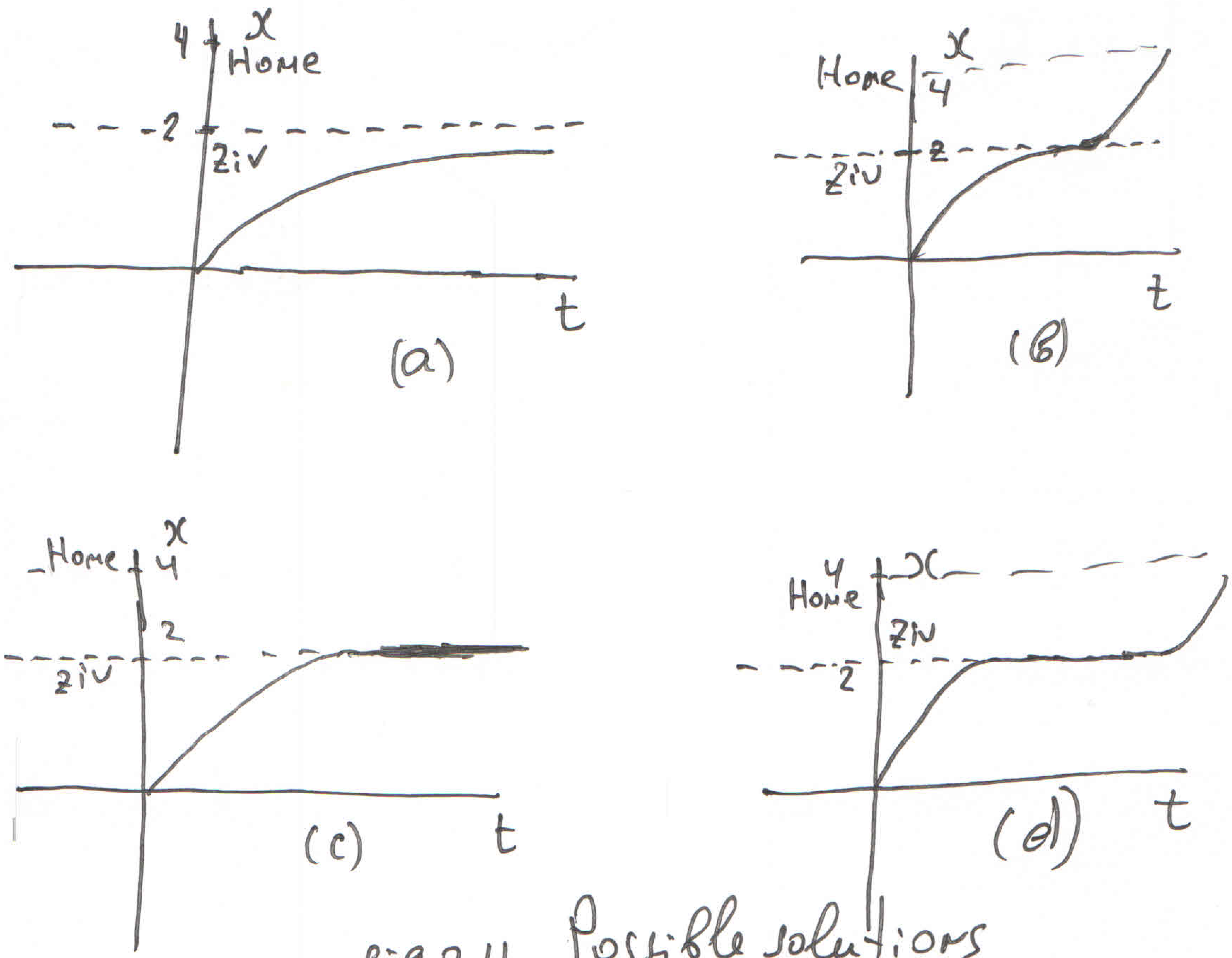
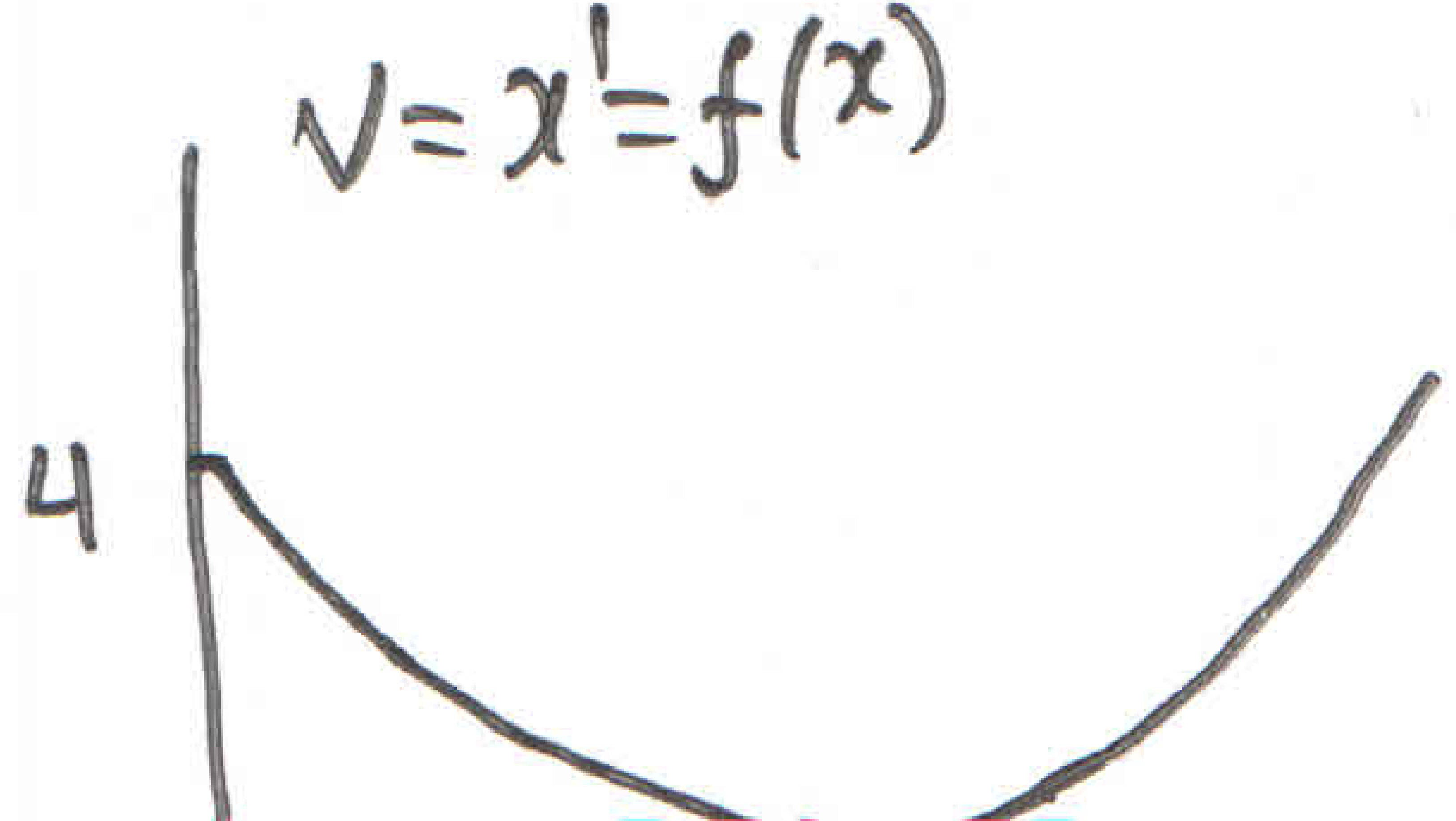
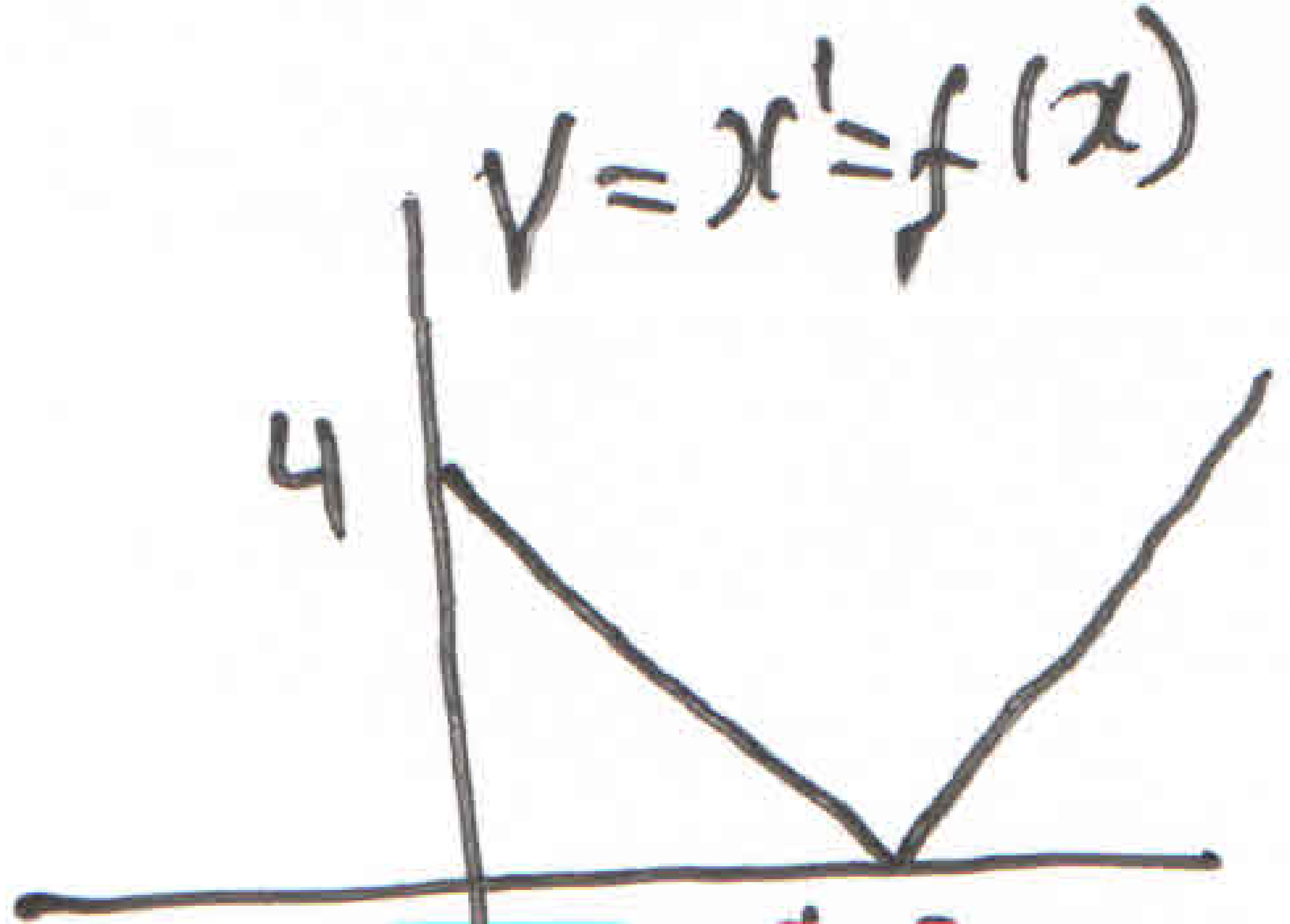


fig. 2.4. Possible solutions

(a) I will never approach Ziv
(b) I will approach Ziv and immediately after that will go home
(c) I will approach Ziv and will stay there for good.
(d) I will aproach Ziv, will stay there a night, will go home after that


V = x' = f(x)
4


V = x' = f(x)
4

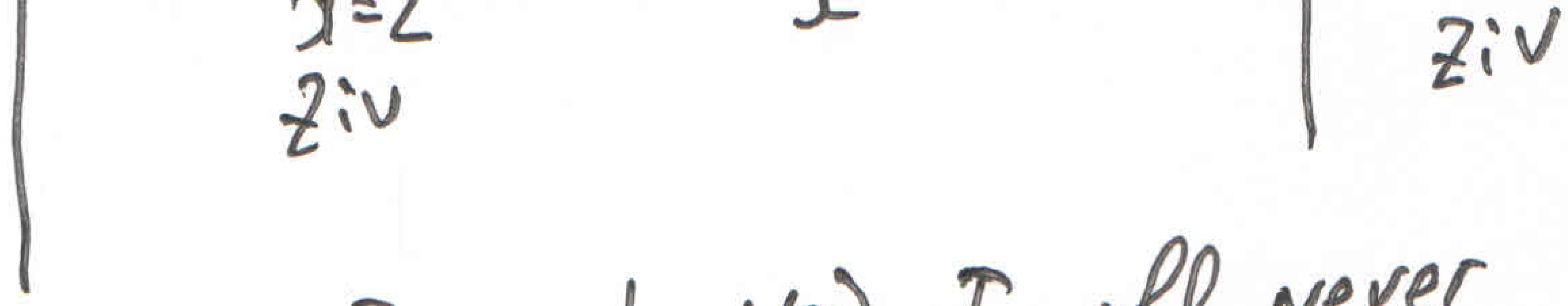


fig 25. For such $f(x)$ I will never reach ziv

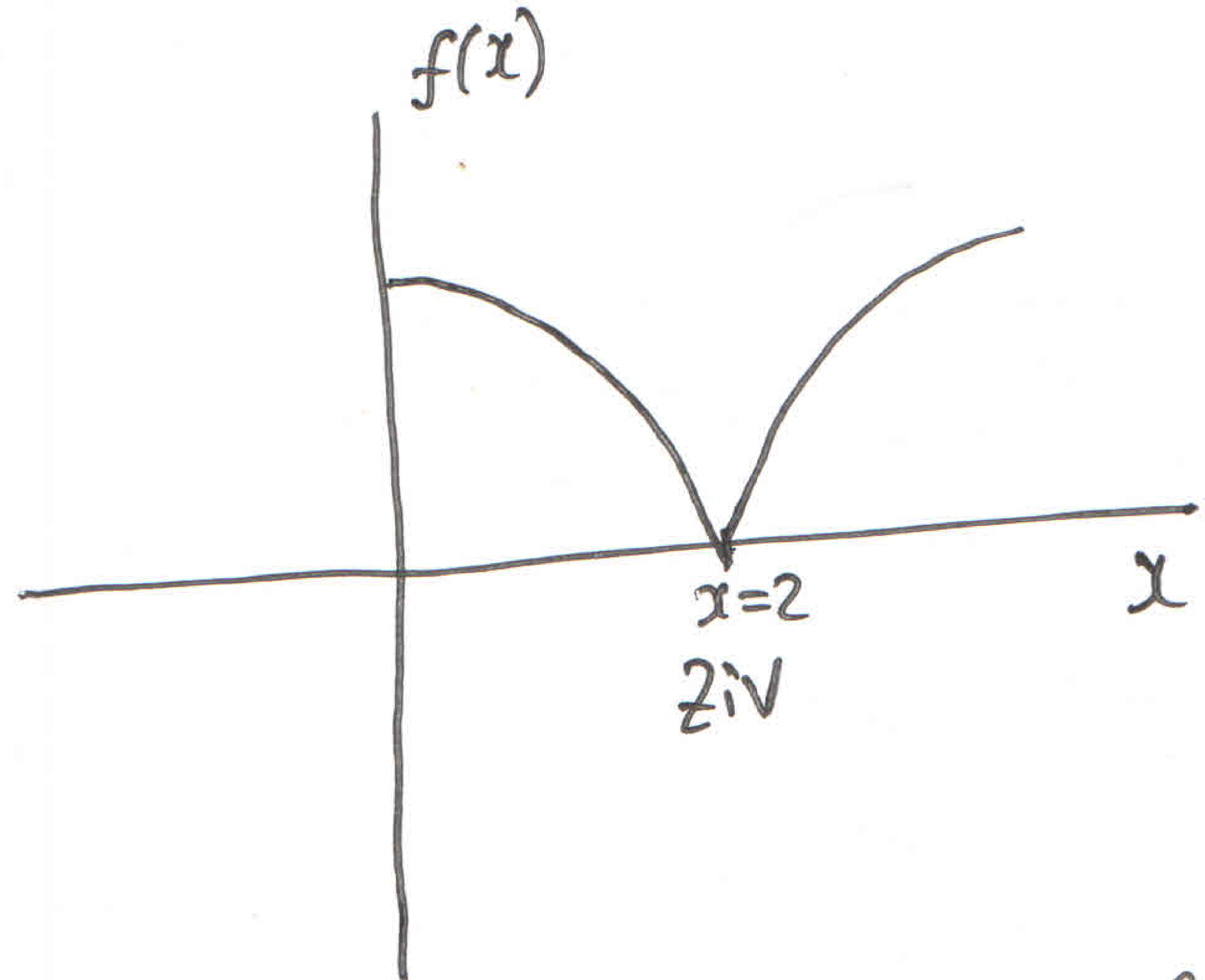


fig 26. For such $f(x)$ I will reach ziv in a finite time; any of the solutions in fig. 24, (b), (c), (d) holds for the equation $x' = f(x)$.

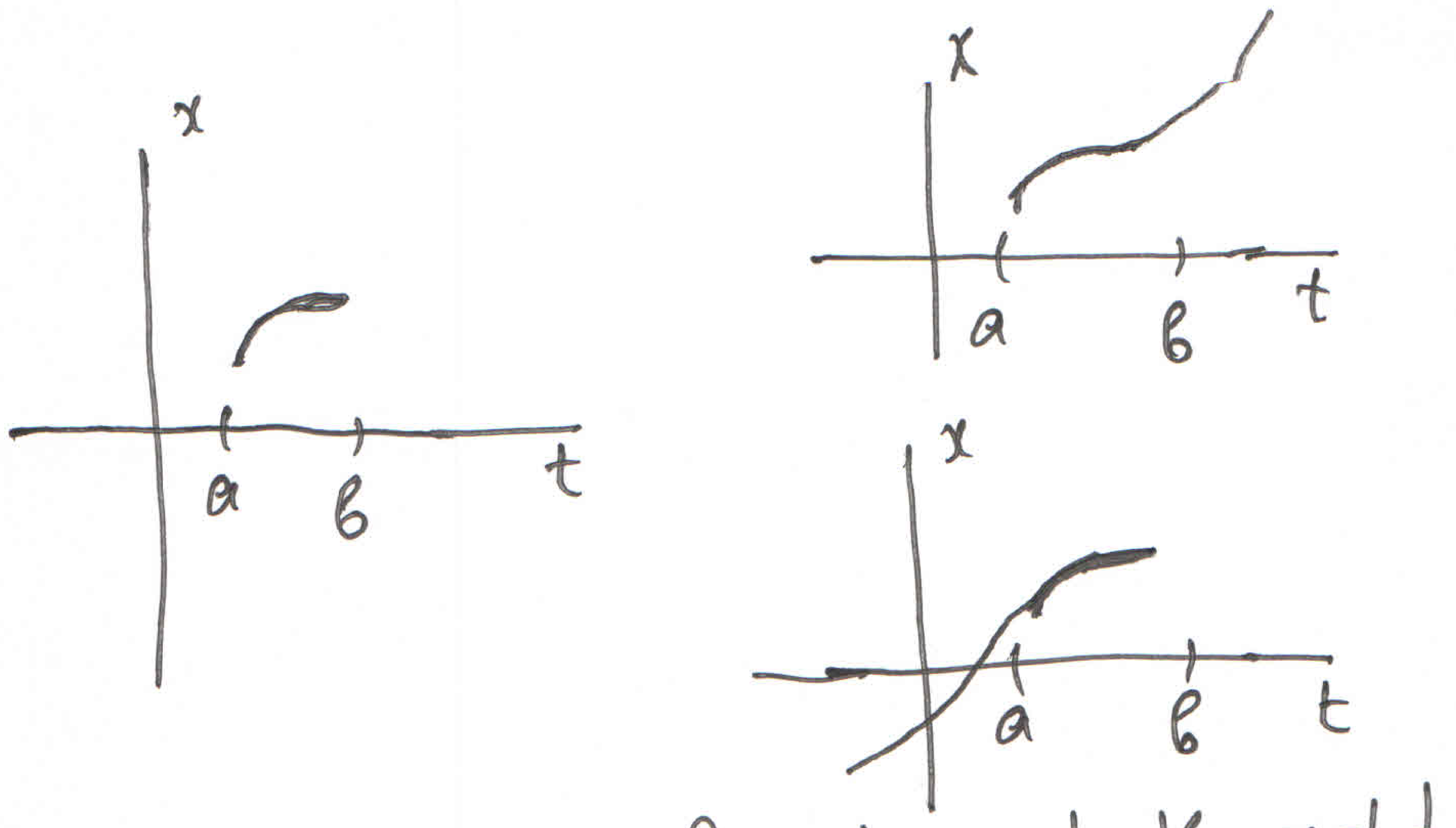


fig. 2.7. Prolongations to the right and to the left. On (a,b) all solutions are the same.

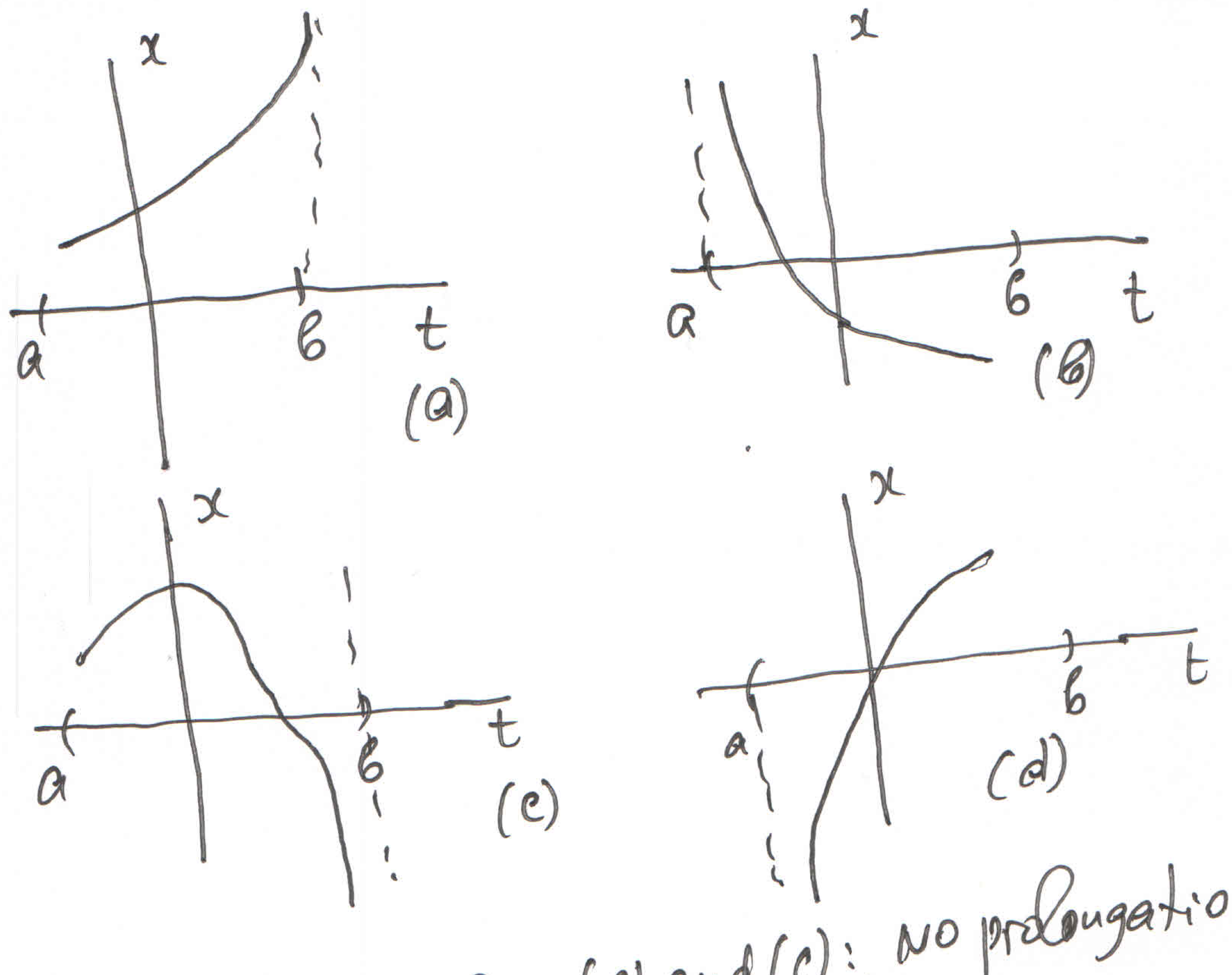


fig. 2.8 (a) and (c): no prolongation to the right
(b) and (d): no prolongation to the left

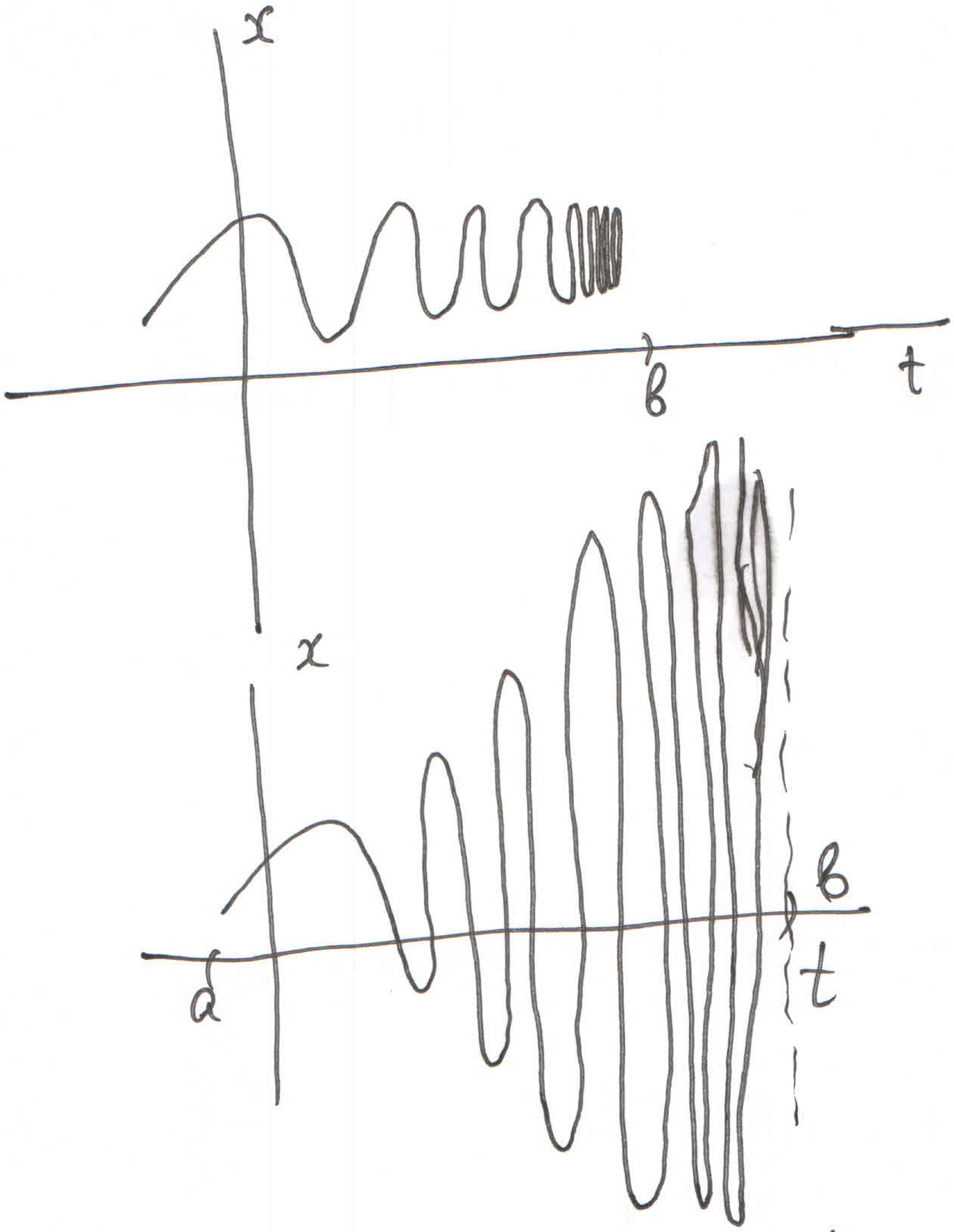


fig. 2.9. Under assumptions of the prolongation theorem such solutions (no finite or infinite limit as $t \to b$) are impossible.

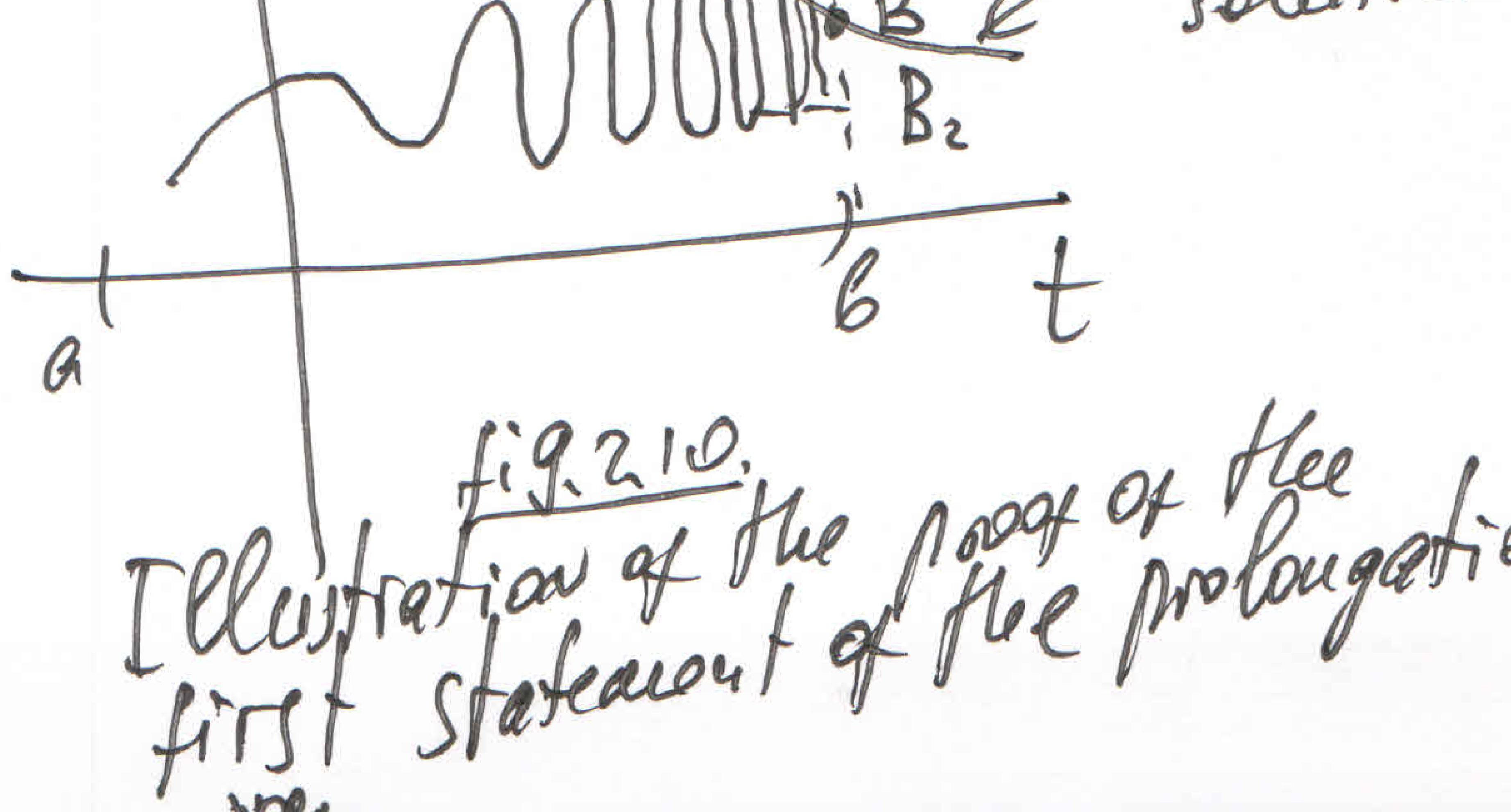


fig. 2.10.
Illustration of the proof of the first statement of the prolongation theorem.