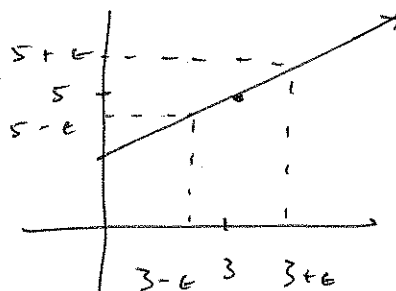
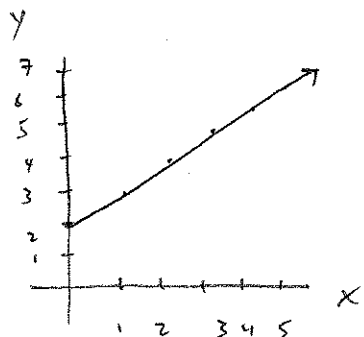


Problem 2. (4 points) Give a careful $(\epsilon - \delta)$ proof of the following limit statement:

$$\lim_{x \rightarrow 3} (x + 2) = 5$$



Scratch work:

Want $| (x + 2) - 5 | < \epsilon$

when $|x - 3| < \underline{\underline{\delta}}$.

But $| (x + 2) - 5 | = |x - 3| < \underline{\underline{\epsilon}}$

So let $\boxed{\delta = \epsilon}$

Pf. Let $\epsilon > 0$ be arbitrary. Then set $\delta = \epsilon$;

we have $0 < |x - 3| < \delta$

$$\Rightarrow | (x + 2) - 5 | = |x - 3| < \delta = \epsilon$$

as desired. \square