

1b.  $f(x) = 2x - 1$

$$L = -5$$

$$\varepsilon = 0.12$$

$$x_0 = -2$$

Find open interval about  $x_0$  where

$$|f(x) - L| < \varepsilon$$

substitute known values & solve for  $x$

$$|f(x) - (-5)| < 0.12$$

$$|2x - 1 + 5| < 0.12$$

$$|2x + 4| < 0.12$$

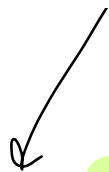
we need to remove the absolute value by adding  
the lower bound on the left side

$$-0.12 < 2x + 4 < 0.12$$

$$\begin{array}{ccc} -4 & & -4 \end{array}$$


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$$\frac{-4.12}{2} < \frac{2x}{2} < \frac{-3.88}{2}$$



$$-2.06 < x < -1.94$$

Solving for  $\delta$  so that  $|f(x) - L| < 0.12$  still holds -

$$2.06 - 2 = 0.06$$

$$2 - 1.94 = 0.06$$

$$\delta = 0.06$$