Worksheet #9: WKB approximation

Consider $\epsilon^2 y'' - xy = 0$, where $\epsilon \ll 1$.

(1) For what domains is it oscillatory? Evanescent (growing/decaying)?

- (2) Lets take x > 1. Write down k(x).
- (3) Write down the general WKB solution.

(4) Find the coefficients with the boundary conditions: y(1) = 1, $\lim_{x \to \infty} y(x) = 0$.

(5) Rewrite the WKB solution so x = 1 is lower limit of action integral.