1. [8 points] The Amazing Wanda is performing a magic act.

a. Let $V(t)$ be the volume, in decibels (dB), of the audience's applause t seconds after the beginning of the act.

i. [2 points] At time $t = 0$, the audience is already clapping at a volume of 52 dB. During Wanda's first trick, which lasts 45 seconds, the volume of the audience's applause increases at a constant rate of 0.4 dB per second. Write a formula for the function $V(t)$ during the first trick.

Answer: $V(t) =$ _____ for $0 \le t \le 45$

ii. [4 points] During Wanda's second trick, which begins at $t = 45$ and lasts until the end of the act at time $t = 95$, the volume of the audience's applause increases by 1.2% every second. Write a piecewise formula for the function $V(t)$ on the interval $[0, 95]$. Make sure that $V(t)$ is a continuous function.

Answer: $V(t) = \begin{cases} \text{\_\_\_\_\_} & \text{for } 0 \le t \le 45 \\ \text{\_\_\_\_\_} & \text{for } 45 < t \le 95 \end{cases}$

b. [2 points] A few minutes after her act, Wanda returns to the stage for an encore performance. Let $W(s)$ be the volume, in dB, of the audience's applause s seconds after the encore begins. A table of some values of $W(s)$ is given below.

s	0	2	3
$W(s)$	3.00	3.60	4.32

Could $W(s)$ be an exponential function? Circle your answer below. Show your work to justify your answer.

Answer: YES NO