

1. The decibel level, D , of a sound with intensity I , as measured in watts per square inch, is given by $D = 10 \cdot \log \left(\frac{I}{10^{-12}} \right)$.

What is the decibel level of a conversation with intensity 10^{-6} watts per square inch?

2. The decibel level, D , of a sound with intensity I , as measured in watts per square inch, is given by $D = 10 \cdot \log \left(\frac{I}{10^{-12}} \right)$.

What is the decibel level of a conversation with intensity 10^{-8} watts per square inch?

3. The decibel level, D , of a sound with intensity I , as measured in watts per square inch, is given by $D = 10 \cdot \log \left(\frac{I}{10^{-12}} \right)$.

What is the decibel level of a conversation with intensity 10^{-10} watts per square inch?

4. The decibel level, D , of a sound with intensity I , as measured in watts per square inch, is given by $D = 10 \cdot \log \left(\frac{I}{10^{-12}} \right)$.

What is the decibel level of a conversation with intensity 10^{-7} watts per square inch?

5. A virus takes 5 days to grow from 50 to 120 specimens. How many days will it take to grow from 50 to 150 specimens? Round to the nearest whole number.

6. A virus takes 2 days to grow from 50 to 170 specimens. How many days will it take to grow from 50 to 620 specimens? Round to the nearest whole number.

7. A virus takes 13 days to grow from 130 to 190 specimens. How many days will it take to grow from 130 to 430 specimens? Round to the nearest whole number.

8. A rocket engine is test fired, bringing its temperature to $4420^{\circ}F$. The air temperature is $69^{\circ}F$. Then 19 minutes after it is shut off, its temperature is $3846^{\circ}F$.

1. Write the exponential function describing the temperature in $^{\circ}F$ as a function of time in minutes.

2. How many minutes will it take to cool from the initial $4420^{\circ}F$ to $150^{\circ}F$?

Round values to three decimal places.

9. A coffee pot brings the temperature of the coffee to $178^{\circ}F$. The room temperature is $69^{\circ}F$. After 8 minutes, the coffee temperature is $164^{\circ}F$.

1. Write the exponential function describing the temperature in $^{\circ}F$ as a function of time in minutes.

2. How many minutes will it take to cool from the initial $178^{\circ}F$ to $150^{\circ}F$?

Round values to three decimal places.

10. A rocket engine is test fired, bringing its temperature to $5610^{\circ}F$. The air temperature is $54^{\circ}F$. Then 15 minutes after it is shut off, its temperature is $5046^{\circ}F$.

1. Write the exponential function describing the temperature in $^{\circ}F$ as a function of time in minutes.

2. How many minutes will it take to cool from the initial $5610^{\circ}F$ to $144^{\circ}F$?

Round values to three decimal places.