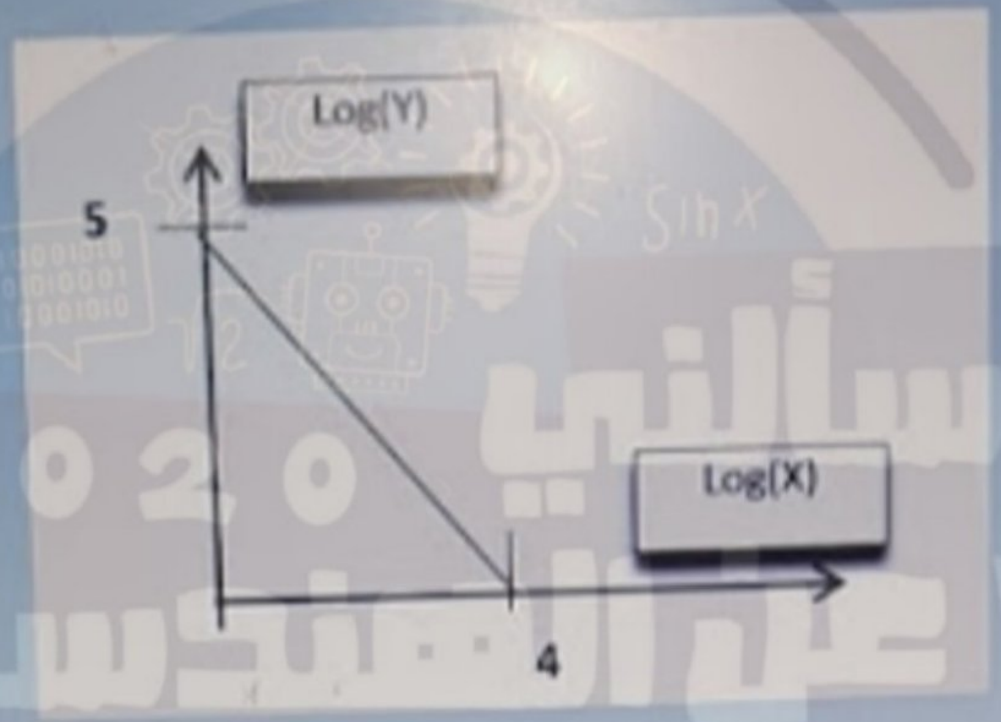
The empirical relationship between Y and X for the graph shown is:



- Y = log5 * X^(1.25)
- [x] Y = 10^(5) * X^(-1.25)
- Y = 10^(5) * X^(1.25)
- y = 4x - 5
- log Y = 1.25*log X + 5

Clear my choice

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$y = mx + b$ ← معطى مبدئي

$\log(y) = m\log(x) + 5$

$(2,5)$, $(4,0)$ ← m ← slope $= \frac{\Delta y}{\Delta x} = \frac{5-0}{0-4} = -1.25$

$\log(y) = -1.25\log(x) + 5$

$10^{\log(y)} = 10^{-1.25\log(x)+5}$ ← $y = x^{-1.25} * 10^{5}$ (B)

The relationship between the area (A) of several disks and their corresponding diameters (d) is is:

- a. 3.15889
- b. 2.5238
- c. None of the above is correct.
- d. 3.1773
- e. 3.1416

Clear my choice

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* The relationship between the area (A) of several disks and their corresponding diameters (d) is shown in the figure beside. The calculated value of π is :-

$$\log A = 2 \log d - 0.1$$

$$A = \frac{d^2}{10^{0.1}}$$

$$\pi \frac{d^2}{4} = \frac{d^2}{10^{0.1}}$$

$$\longrightarrow \pi = 3.1773 \quad * C$$

In trying to find an empirical relationship between the height of water in a container (h) and the time needed to empty the container (t), a student collected the data and plotted (Log t) versus (Log h) as shown in the adjacent figure. Given that the slope of the line is m, and the y- intercept is b. An expression of t(h) can be written as:

- $t = 10^{b} \times h^{m}$
- $t = h^{m} + b$
- $t = 10bh + 10^{m}$
- $t = 10bh + m$
- $t = mh + b$

Clear my choice

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$$\log(t) = m\log(h) + b$$

$$10^{\log(t)} = 10^{m\log(h)+b}$$

$$t = 10^{b} * h^{m}$$

(A)

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