

which one of the following pairs of measurements are equivalent

A. 24 kL equal to 240 L

By definition:

$$1 \text{ kL} = 1000 \text{ L}$$

Therefore:

$$24 \text{ kL} = 24 * 1000 \text{ L} = 24000 \text{ L}$$

And finally:

$$24000 \text{ L} \neq 240 \text{ L}$$

Answer: not equivalent

B. 380 equal to 3.80×10^4

$$3.8 \times 10^4 = 38000$$

Therefore:

$$380 \neq 38000$$

Answer: not equivalent

C. 247 nm equal to 2.47×10^{-5}

By definition:

$$1 \text{ nm} = 10^{-9} \text{ m}$$

Therefore:

$$247 \text{ nm} = 247 * 10^{-9} \text{ m} = 2.47 * 100 * 10^{-9} \text{ m} = 2.47 * 10^{-7}$$

And finally:

$$2.47 * 10^{-7} \neq 2.47 * 10^{-5}$$

Answer: not equivalent