Internal Energy, Volume, and Molecules—Temperature [116]

Rank the temperatures of the ideal gases below that contain various amounts of internal energy (U) and various numbers of molecules (N) in various volumes.

A

$U=20$ J
$N=10,000$
$V= 2$ L

B

$U=20$ J
$N=5,000$
$V= 2$ L

C

$U=20$ J
$N=20,000$
$V= 2$ L

D

$U=30$ J
$N=10,000$
$V= 2$ L

$U=15$ J
$N=10,000$
$V= 2$ L

E

$U=15$ J
$N=10,000$
$V= 1$L

F

$U=30$ J
$N=10,000$
$V= 1$ L

G

$U=40$ J
$N=60,000$
$V= 4$ L

H

Greatest   1____   2____   3____   4____   5____   6____   7____   8____   Least

Or, all these gases have the same temperature.__

Or, it is not possible to rank the temperatures for these gases._____

Please carefully explain your reasoning.

How sure were you of your ranking? (circle one)
Basically guessed   Sure   Very Sure
1   2   3   4   5   6   7   8   9   10