

Purpose: What is the technical definition of boiling?

Absolute temperature: always measured in kelvins. When you double absolute temperature it doubles the energy of motion.

Absolute zero: Zero kelvins.
All motion stops.

Example:

What temperature would have half the kinetic energy of 27°C ?

formula $\text{celsius}^{\circ} + 273 = \text{kelvins}$

$$(27) + 273 = 300 \text{ kelvins}$$

$$300 \div 2 = 150 \text{ kelvins (answer)}$$

Absolute temperature: is measured in kelvins

conversion: $^{\circ}\text{C} + 273 = \text{kelvins}$

Absolute zero: the temperature where all vibration stops. It is zero kelvins

What temperature would have half the kinetic energy of 27°C ?

$$27 + 273 = 300 \text{ kelvins}$$

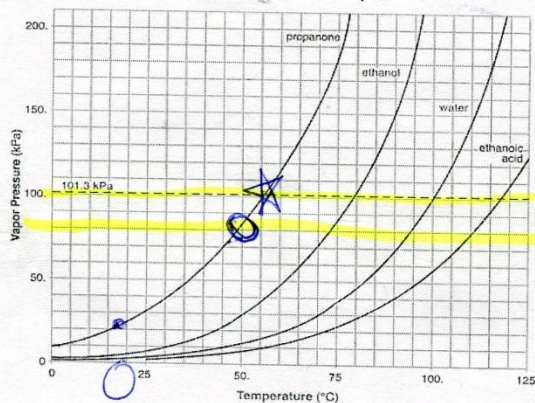
$$\text{Answer} = \frac{300\text{K}}{2} = 150 \text{ kelvins}$$

What temperature would have double the kinetic energy of 0°C ?

$$0 + 273 = 273 \text{ kelvins}$$

$$273 \times 2 = 546 \text{ kelvins} \\ (\text{answer})$$

Table II
Vapor Pressure of Four Liquids



ANY LIQUID WILL BOIL IF
YOU CAN MAKE THE VAPOR
PRESSURE EQUAL THE
AIR PRESSURE OF THE ROOM

EXAMPLE What temperature will
water boil in Colorado?

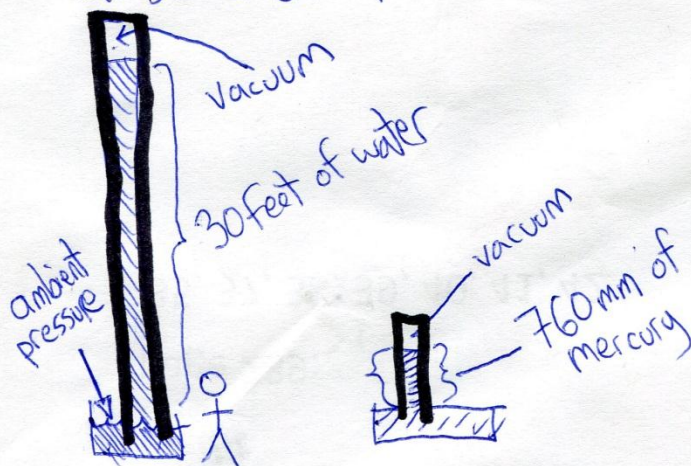
Answer: 90°C ★

Example In Colorado what is the
boiling temperature of ethanol?

Answer: 70°C

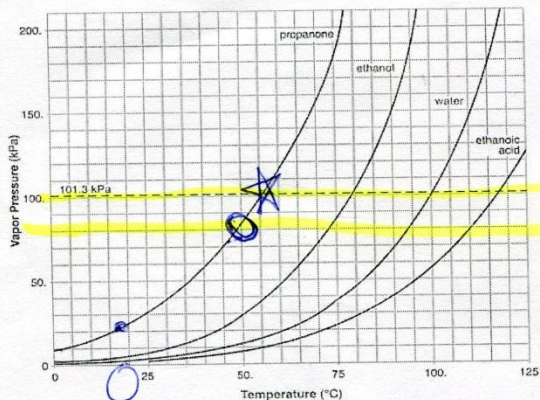
AMBIENT PRESSURE pressure
from the atmosphere

VACUUM = the complete
absence of matter.



A BAROMETER IS A MACHINE
THAT MEASURES AMBIENT
PRESSURE.

Table II
Vapor Pressure of Four Liquids



Normal
pressure
(Sea
level)

☆ - propanone boils at
55°C at 101 kPa

○ - propanone boils at 50°C
in Colorado