

QUIZ: GAS LAWS

On the right are graphs of data collected using the same methods as you used in lab. Use these data to answer questions.

- Atmospheric pressure is closest to
 - 0 kPa.
 - 20 kPa.
 - 26 kPa.
 - 100 kPa.
 - 101.5 kPa.
- For the **Gay-Lussac** experiment, pressure was measured
 - as temperature increased while volume was held constant.
 - as volume increased while temperature was held constant.
- For the Gay-Lussac experiment, why does the release valve on the stopper need to be closed?
 - It doesn't. The valve needs to remain open the whole time.
 - If you leave the valve open, the tube is not isolated from the atmosphere, and the pressure will be the same as the surrounding atmosphere.
- According to the **Gay-Lussac data**, the relationship between pressure and temperature is
 - quadratic.
 - exponential.
 - inversely proportional.
 - directly proportional (linear).
 - Trick question! The data are random, and there is no relationship between pressure and temperature!
- The equation which best fits the **Gay-Lussac data** shown is

A) $p = (0.305)T + 95.4$	C) $p = [(0.305)/T] + 95.4$
B) $p = (95.4)T + 0.305$	D) $p = [(95.4)/T] + 0.305$

E) Trick question! There is no equation to describe the graph shown. The data are clearly random.
- For the **Boyle** experiment, pressure was measured
 - as volume decreased while temperature was held constant.
 - as temperature decreased while volume was held constant.
- According to the **Boyle data**, the relationship between pressure and volume is
 - quadratic.
 - exponential.
 - inversely proportional.
 - directly proportional (linear).
 - Trick question! The data are random, and there is no relationship between pressure and volume!
- The equation which best fits the **Boyle data** is

A) $p = (1712)V^{(-0.94)}$	D) $p = (0.94)V + 1712$
B) $p = (1712)V^{(0.94)}$	E) $p = (1712)V + 0.94$
C) $p = (0.94)V^{(1712)}$	
- According to **Charles' Law**, for a gas held at constant pressure
 - an increase in temperature causes an increase in volume.
 - an increase in temperature causes a decrease in volume.
 - a decrease in temperature causes an increase in volume.
 - changing the temperature causes no change in volume.
 - Trick question! There is no way to maintain a gas at constant pressure.
- When a firefighter injects a fine fog of water droplets into a room of a burning building,
 - the smoke and hot gases are unaffected; the water droplets are too small to put out the fire.
 - the smoke and gases get even hotter, which seems counter-intuitive, but it's what the firefighters want.
 - the smoke and hot gases are rapidly cooled, thereby reducing their temperature, volume and, pressure.

