Pressure Concept for Gases

Activity 1: Meaning of Pressure

Question Group 1

Question 1

When comparing the gas pressure of different containers, one can be certain that the container with the **highest pressure** will be the one with the …

greatest ratio of collision force to surface area
smallest ratio of collision force to surface area
most forceful collisions of particles on the wall
smallest surface area
least forceful collisions of particles on the wall
largest surface area

Question 2

When comparing the gas pressure of different containers, one can be certain that the container with the **lowest pressure** will be the one with the …

smallest ratio of collision force to surface area
greatest ratio of collision force to surface area
most forceful collisions of particles on the wall
smallest surface area
least forceful collisions of particles on the wall
largest surface area

Question Group 2

Question 3

Which set of variables when taken together will result in the **highest pressure**?

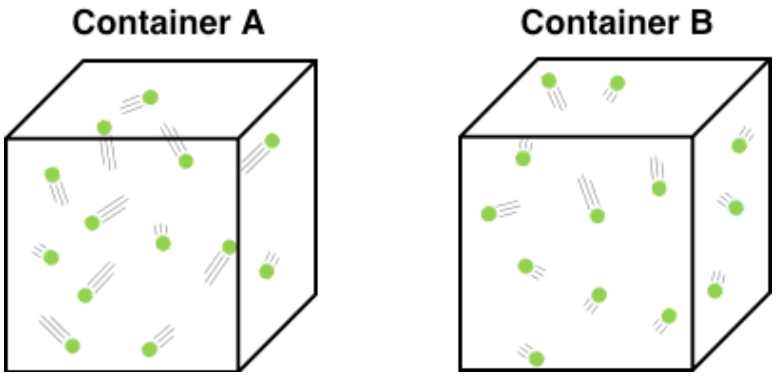
High number of massive particles moving very fast in a small container.
Low number of small particles moving slowly in a large container.
Low number of small particles moving slowly in a small container.
High number of massive particles moving fast in a large container.
Low number of massive particles moving slowly in a large container.
High number of small particles moving fast in a small container.

Question 4

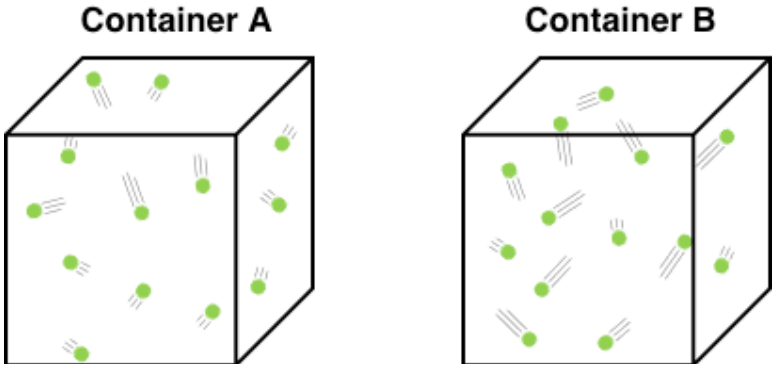
Which set of variables when taken together will result in the **lowest pressure**?

High number of massive particles moving very fast in a small container.
Low number of small particles moving slowly in a large container.
Low number of small particles moving slowly in a small container.
High number of massive particles moving fast in a large container.
Low number of massive particles moving slowly in a large container.
High number of small particles moving fast in a small container.

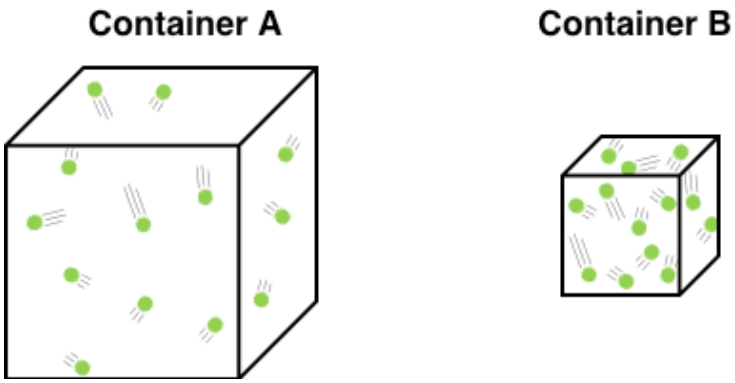
Question Group 3
Question 5
Container A and Container B are the same size; their volume and surface area is the same. They contain the same type of gas and the same number of particles of gas. But the particles in Container A are moving faster (on average) than the particles in Container B. Which container will have the greatest gas pressure?



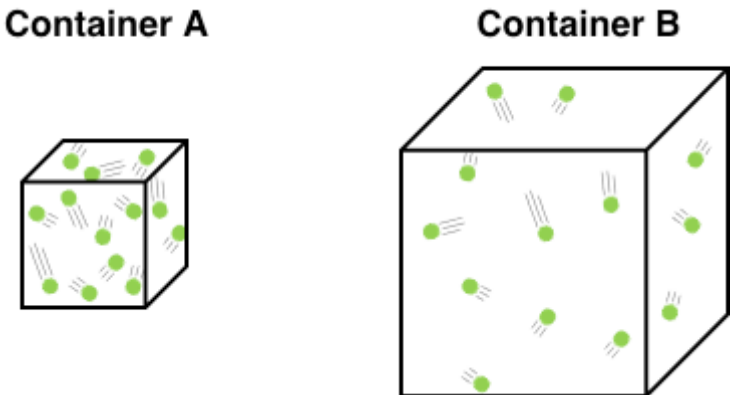
Question 6
Container A and Container B are the same size; their volume and surface area is the same. They contain the same type of gas and the same number of particles of gas. But the particles in Container A are moving slower (on average) than the particles in Container B. Which container will have the greatest gas pressure?



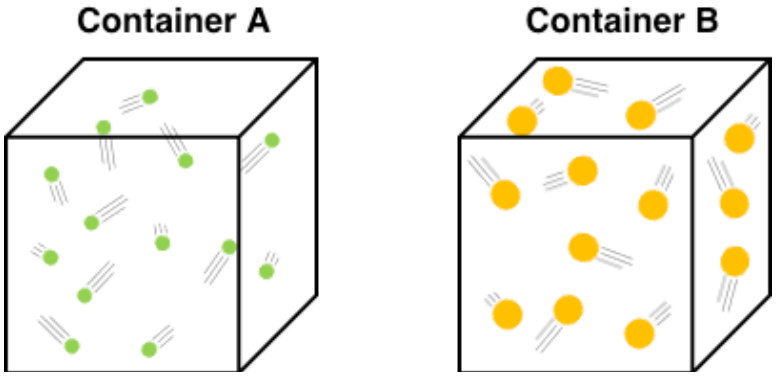
Question Group 4
Question 7
Container A is larger than Container B. It's volume and surface are noticeably greater. Both containers are filled with the same number of particles of gas. The type of gas in the two containers are the same. And the speed with which the particles move (on average) is the same for both containers. Which container will have the greatest gas pressure?



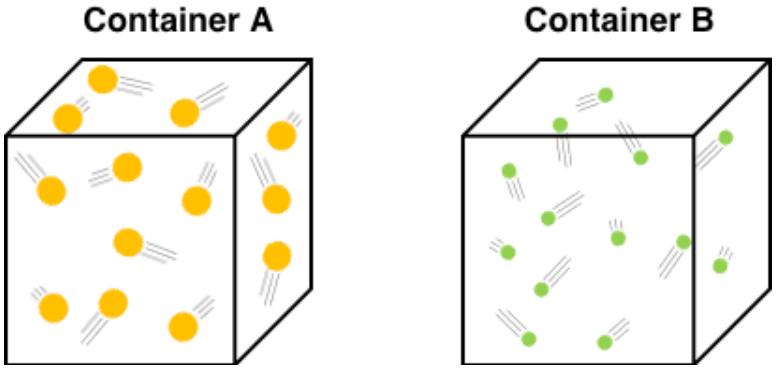
Question 8
Container A is smaller than Container B. It's volume and surface are noticeably less. Both containers are filled with the same number of particles of gas. The type of gas in the two containers are the same. And the speed with which the particles move (on average) is the same for both containers. Which container will have the greatest gas pressure?



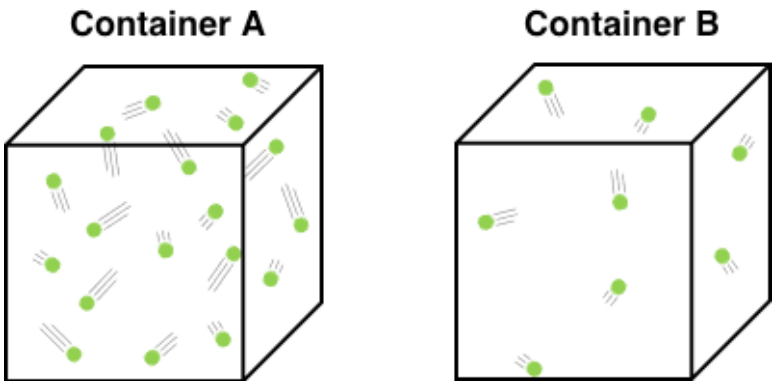
Question Group 5
Question 9
Container A and Container B are the same size; their volume and surface area is the same. The speed with which the particles move (on average) is the same for both containers. The number of gas particles in each container is the same. But the type of gas in the two containers is different. The gas particles in Container A are less massive particles than those in Container B. Which container will have the greatest gas pressure?



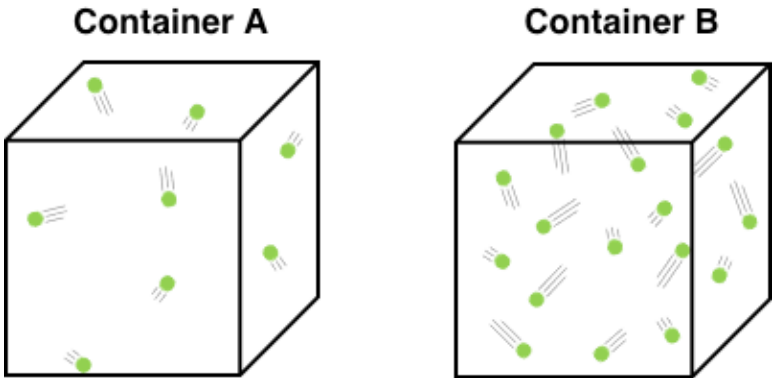
Question 10
Container A and Container B are the same size; their volume and surface area is the same. The speed with which the particles move (on average) is the same for both containers. The number of gas particles in each container is the same. But the type of gas in the two containers is different. The gas particles in Container A are more massive particles than those in Container B. Which container will have the greatest gas pressure?



Question Group 6
Question 11
Container A and Container B are the same size; their volume and surface area is the same. The speed with which the particles move (on average) is the same for both containers. The type of gas is the same in each container. But there are more gas particles in Container A compared to Container B. Which container will have the greatest gas pressure?



Question 12
Container A and Container B are the same size; their volume and surface area is the same. The speed with which the particles move (on average) is the same for both containers. The type of gas is the same in each container. But there are less gas particles in Container A compared to Container B. Which container will have the greatest gas pressure?



Activity 2: Pressure Units
Question Group 7
Question 13
The pressure of three different samples of gas is shown below. The pressure value is expressed in different units. Rank the three samples according to their pressure.

Sample A

Sample B

Sample C

Question 14
The pressure of three different samples of gas is shown below. The pressure value is expressed in different units. Rank the three samples according to their pressure.

Sample A

Sample B

Sample C

Question 15
The pressure of three different samples of gas is shown below. The pressure value is expressed in different units. Rank the three samples according to their pressure.

Sample A

Sample B

Sample C

Question Group 8

Question 16

The pressure of three different samples of gas is shown below. The pressure value is expressed in different units. Rank the three samples according to their pressure.

Sample A

Sample B

Sample C

Question 17

The pressure of three different samples of gas is shown below. The pressure value is expressed in different units. Rank the three samples according to their pressure.

Sample A

Sample B

Sample C

Question 18

The pressure of three different samples of gas is shown below. The pressure value is expressed in different units. Rank the three samples according to their pressure.

Sample A

Sample B

Sample C

Question Group 9

Question 19

The pressure of three different samples of gas is shown below. The pressure value is expressed in different units. Rank the three samples according to their pressure.

Sample A

Sample B

Sample C

Question 20

The pressure of three different samples of gas is shown below. The pressure value is expressed in different units. Rank the three samples according to their pressure.

Sample A

Sample B

Sample C

Question 21

The pressure of three different samples of gas is shown below. The pressure value is expressed in different units. Rank the three samples according to their pressure.

Sample A

Sample B

Sample C

Question Group 10

Question 22

The pressure of three different samples of gas is shown below. The pressure value is expressed in different units. Rank the three samples according to their pressure.

Sample A

Sample B

Sample C

Question 23

The pressure of three different samples of gas is shown below. The pressure value is expressed in different units. Rank the three samples according to their pressure.

Sample A

Sample B

Sample C

Question 24

The pressure of three different samples of gas is shown below. The pressure value is expressed in different units. Rank the three samples according to their pressure.

Sample A

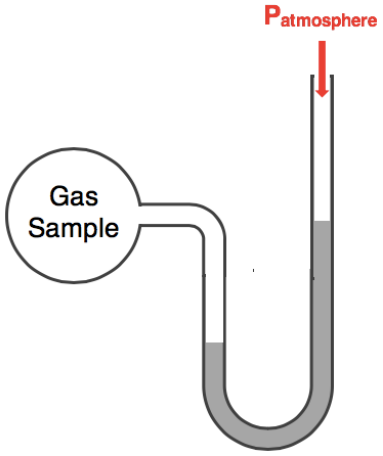
Sample B

Sample C

Activity 3: Manometers
Question Group 11
Question 25

The diagram shows an open-end manometer being used to measure the pressure of a gas sample. The atmospheric pressure is 745 mm Hg. There is a height difference of 215 mm on the opposite sides of the U-tube, with the level being higher on the open-end side (i.e., the atmosphere's side).

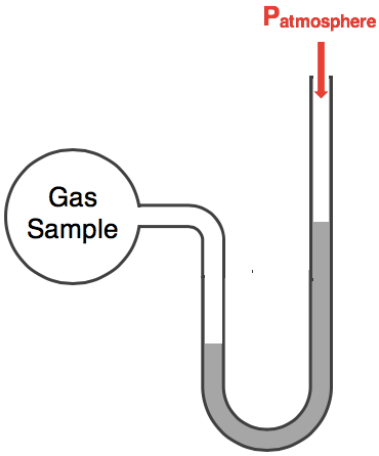
Use this information to determine the pressure (in mm Hg) of the gas sample.



Question 26

The diagram shows an open-end manometer being used to measure the pressure of a gas sample. The atmospheric pressure is 745 mm Hg. There is a height difference of 235 mm on the opposite sides of the U-tube, with the level being higher on the open-end side (i.e., the atmosphere's side).

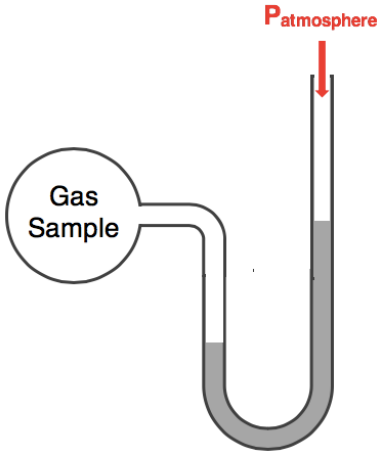
Use this information to determine the pressure (in mm Hg) of the gas sample.



Question 27

The diagram shows an open-end manometer being used to measure the pressure of a gas sample. The atmospheric pressure is 745 mm Hg. There is a height difference of 205 mm on the opposite sides of the U-tube, with the level being higher on the open-end side (i.e., the atmosphere's side).

Use this information to determine the pressure (in mm Hg) of the gas sample.

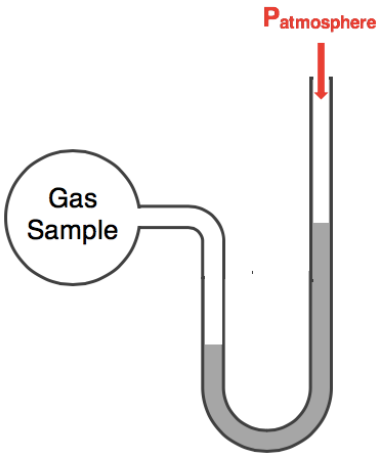


Question Group 12

Question 28

The diagram shows an open-end manometer being used to measure the pressure of a gas sample. The atmospheric pressure is 770 mm Hg. There is a height difference of 320 mm on the opposite sides of the U-tube, with the level being higher on the open-end side (i.e., the atmosphere's side).

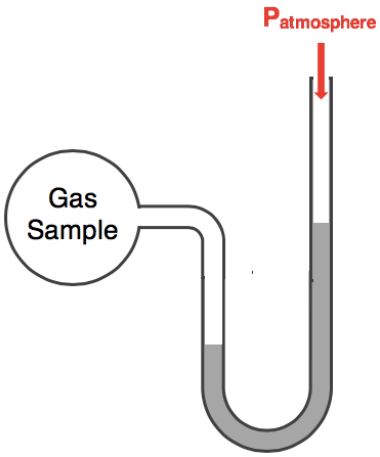
Use this information to determine the pressure (in mm Hg) of the gas sample.



Question 29

The diagram shows an open-end manometer being used to measure the pressure of a gas sample. The atmospheric pressure is 770 mm Hg. There is a height difference of 340 mm on the opposite sides of the U-tube, with the level being higher on the open-end side (i.e., the atmosphere's side).

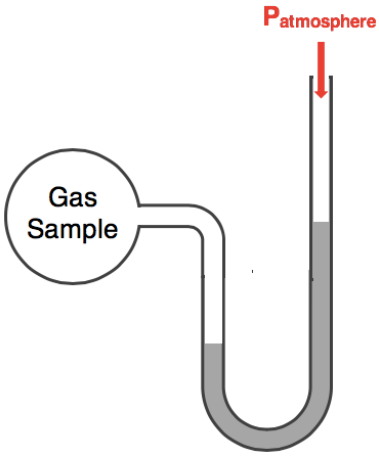
Use this information to determine the pressure (in mm Hg) of the gas sample.



Question 30

The diagram shows an open-end manometer being used to measure the pressure of a gas sample. The atmospheric pressure is 770 mm Hg. There is a height difference of 360 mm on the opposite sides of the U-tube, with the level being higher on the open-end side (i.e., the atmosphere's side).

Use this information to determine the pressure (in mm Hg) of the gas sample.

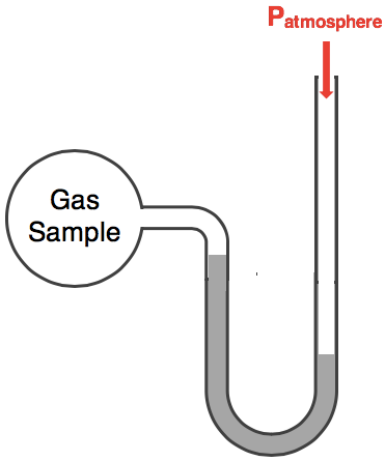


Question Group 13

Question 31

The diagram shows an open-end manometer being used to measure the pressure of a gas sample. The atmospheric pressure is 750 mm Hg. There is a height difference of 205 mm on the opposite sides of the U-tube, with the level being higher on the gas sample's side (i.e., the left side).

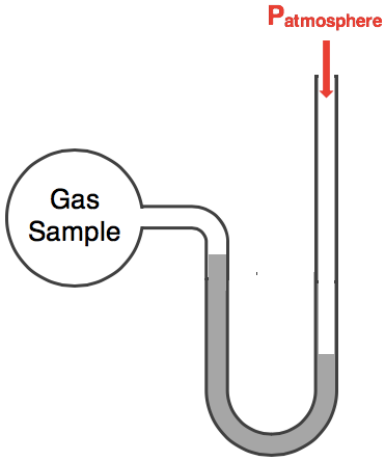
Use this information to determine the pressure (in mm Hg) of the gas sample.



Question 32

The diagram shows an open-end manometer being used to measure the pressure of a gas sample. The atmospheric pressure is 750 mm Hg. There is a height difference of 220 mm on the opposite sides of the U-tube, with the level being higher on the gas sample's side (i.e., the left side).

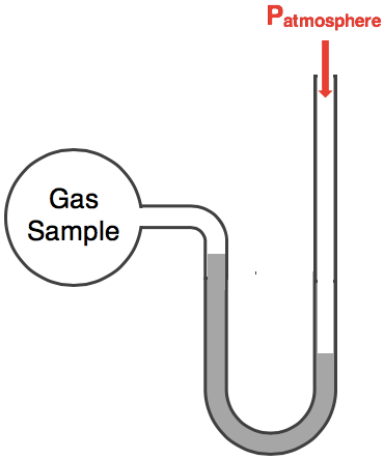
Use this information to determine the pressure (in mm Hg) of the gas sample.



Question 33

The diagram shows an open-end manometer being used to measure the pressure of a gas sample. The atmospheric pressure is 750 mm Hg. There is a height difference of 235 mm on the opposite sides of the U-tube, with the level being higher on the gas sample's side (i.e., the left side).

Use this information to determine the pressure (in mm Hg) of the gas sample.

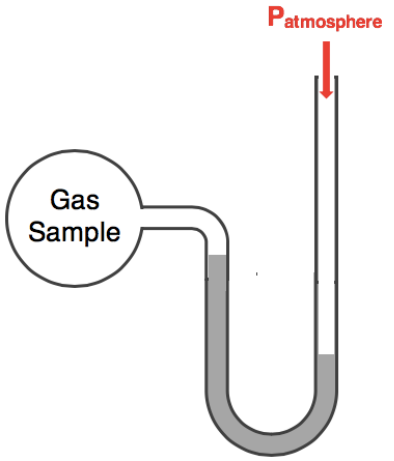


Question Group 14

Question 34

The diagram shows an open-end manometer being used to measure the pressure of a gas sample. The atmospheric pressure is 775 mm Hg. There is a height difference of 310 mm on the opposite sides of the U-tube, with the level being higher on the gas sample's side (i.e., the left side).

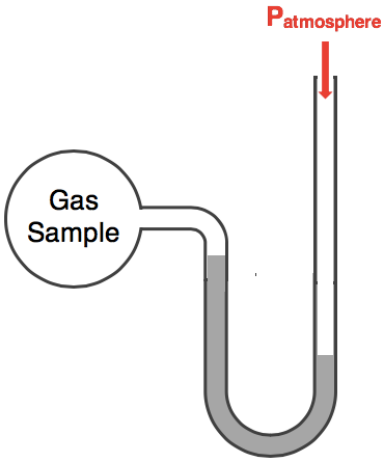
Use this information to determine the pressure (in mm Hg) of the gas sample.



Question 35

The diagram shows an open-end manometer being used to measure the pressure of a gas sample. The atmospheric pressure is 775 mm Hg. There is a height difference of 325 mm on the opposite sides of the U-tube, with the level being higher on the gas sample's side (i.e., the left side).

Use this information to determine the pressure (in mm Hg) of the gas sample.



Question 36

The diagram shows an open-end manometer being used to measure the pressure of a gas sample. The atmospheric pressure is 775 mm Hg. There is a height difference of 335 mm on the opposite sides of the U-tube, with the level being higher on the gas sample's side (i.e., the left side).

Use this information to determine the pressure (in mm Hg) of the gas sample.