

Name _____ period _____ date _____

Pressure Conversions Worksheet

Write the answer on the line to the left. **Show all work** in the space provided.

1. Convert 732.0 mm Hg to the following units

a) _____ atm

b) _____ kPa

2. Convert 0.760 atm to the following units

a) _____ mm Hg

b) _____ kPa

3. Convert 137.5 kPa to the following units

a) _____ mm Hg

b) _____ atm

4. A closed manometer is filled with mercury and connected to a container of NO₂ nitrogen(IV) oxide, gas. The difference in the height of mercury in the two arms is 345 mm. What is the pressure, in kilopascals, of NO₂ gas?

5. In a closed manometer, assume that the height of the levels differs by 210 mm Hg. What is the pressure, in kilopascals, of the gas in the container?

EXAMPLE: Open Manometer

An open manometer is filled with mercury. The difference between Mercury levels in two arms is 60.0 mm, as shown in figure 1. What is the total pressure, in kilopascals, of the gas in the container? The air pressure is 98.0 kPa.

Solving process:

The mercury is higher in the arm connected to the outside air. Thus, the 60mm pressure exerted by the gas must be more than the air pressure. As a result, we must add the pressure of the mercury to the air, to get the gas pressure. Before adding, we must convert the 60.0 mm difference to kilopascals. solve the pressure...

$$\frac{(60.0 \text{ mm})(101.3 \text{ kPa})}{760 \text{ mm}} = 8.00 \text{ kPa}$$

Now add the two pressures

$$98.0 + 8.00 = 106 \text{ kPa}$$

6. An open manometer, such as the one pictured, is filled with mercury and connected to a container of hydrogen. The mercury level is 30.0 mm higher in the arm of the tube connected to the air. Air pressure is 101.3 kPa. What is the pressure of the hydrogen gas in kilopascals?

7. An open manometer is filled with mercury and connected to a container of oxygen. The level of the mercury is 75.0 mm higher in the arm connected to the container of oxygen. Air pressure is 101.3 kPa. What is the pressure in kilopascals of the oxygen?