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| doing math with gas pressures  East.H.S. ©λ€M|5+rγ  visit http://genest.weebly.com |  | Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Come for assistance and cheerful encouragement after school Tues, Thurs, or every day at lunch |

***On each of the problems below, start with the given P, V, T, or n; then make a decision as to how a change in P, V, T, or n will affect the starting quantity, and then multiply by the appropriate factor. Draw particle diagrams of the initial and final conditions.***

1. A sample of gas occupies 150 mL at 25 ˚C. What is its volume when the temperature is increased to 50˚C? (P and n = constant)

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| before (particle picture) | after (particle picture) | Write numbers for *initial* and *final*. Choose either ( < or 0 or > ) for *effect*. |
| Do math with ratios (dimensional analysis) to solve for a numerical answer. Don’t forget units. | | |

1. The pressure in a bicycle tire is 105 psi at 25˚C in Fresno. You take the bicycle up to Huntington, where the temperature is – 5˚C. What is the pressure in the tire?   
   (V and n = constant)

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| before (particle picture) | after (particle picture) | Write numbers for *initial* and *final*. Choose either ( < or 0 or > ) for *effect*. |
| Do math with ratios (dimensional analysis) to solve for a numerical answer. Don’t forget units. | | |

1. What would be the new pressure if 250 cm3 of gas at standard pressure is compressed to a volume of 150 cm3 ? ( = constant)

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| before (particle picture) | after (particle picture) | Write numbers for *initial* and *final*. Choose either ( < or 0 or > ) for *effect*. |
| Do math with ratios (dimensional analysis) to solve for a numerical answer. Don’t forget units. | | |

1. . What would be the new volume if 250 cm3 of gas at 25˚C and 730 mm pressure were changed to standard conditions of temperature and pressure? ( = constant)

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| before (particle picture) | after (particle picture) | Write numbers for *initial* and *final*. Choose either ( < or 0 or > ) for *effect*. |
| Do math with ratios (dimensional analysis) to solve for a numerical answer. Don’t forget units. | | |

1. Sam’s bike tire contains 15 units of air particles and has a volume of 160mL. Under these conditions the pressure reads 13 psi. The tire develops a leak. Now it contains 10 units of air and has contracted to a volume of 150mL). What would the tire pressure be now?

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| before (particle picture) | after (particle picture) | Write numbers for *initial* and *final*. Choose either ( < or 0 or > ) for *effect*. |
| Do math with ratios (dimensional analysis) to solve for a numerical answer. Don’t forget units. | | |

1. A closed flask of air (0.250L) contains 5.0 “puffs” of particles. The pressure probe on the flask reads 93 kPa. A student uses a syringe to add an additional 3.0 “puffs” of air through the stopper. Find the new pressure inside the flask.

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| before (particle picture) | after (particle picture) | Write numbers for *initial* and *final*. Choose either ( < or 0 or > ) for *effect*. |
| Do math with ratios (dimensional analysis) to solve for a numerical answer. Don’t forget units. | | |

1. A 350 mL sample of gas has a temperature of 30˚C and a pressure of 1.20 atm. What temperature would be needed for the same amount of gas to fit into a 250 mL flask at standard pressure?

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| before (particle picture) | after (particle picture) | Write numbers for *initial* and *final*. Choose either ( < or 0 or > ) for *effect*. |
| Do math with ratios (dimensional analysis) to solve for a numerical answer. Don’t forget units. | | |

1. A 475 cm3 sample of gas at standard temperature and pressure is allowed to expand until it occupies a volume of 600. cm3. What temperature would be needed to return the gas to standard pressure?

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| before (particle picture) | after (particle picture) | Write numbers for *initial* and *final*. Choose either ( < or 0 or > ) for *effect*. |
| Do math with ratios (dimensional analysis) to solve for a numerical answer. Don’t forget units. | | |

1. In each case, solve for the pressure inside the flask.

