

WebAssign

Logged in as: dberke@commack.ny. | Logout

Switch to Student View | My Options | Help

Home | Calendar | Assignments | Questions | Tasks | Grades | Communication | ClassView |

Files

Quick Search

Create: Course Assignment Question

No class currently selected

Assignment Editor -- Editing heat energy #2 (271362)

Last Saved: Jan 5, 2005 02:30 P
ES

Page Tools

Save Test/Preview Duplicate Revert Schedule

My Files

Assignment Options

Info

Name

Description

This assignment is due Thursday 1/4/05. Please bring a copy of your questions and solutions to class.
Note the last multiple choice question is not in the curriculum, but it is interesting to discuss.

Instructions

NH3 ammonia = 17g/mol
1000 Liters = 1 meter cubed
V rms = root mean squared velocity= average velocity

Questions

Add / Manage Questions

Short Full

1. Hecht2 12.MC.002. [14744] At the temperature known as absolute zero

- all motion ceases
- time ceases
- atomic motion is at a minimum
- none of these
- translational atomic KE is zero

↓ T → ↓ Energy

1a

	Points	Conditional Points	Submissions Override
1a	<input type="text" value="1"/>	<input type="text" value="edit"/>	<input type="text" value="-"/>

2. Hecht2 12.MC.006. [14748] If the temperature of a sealed chamber full of gas is increased, the pressure will

- remain constant
- decrease proportionately
- increase proportionately

PV ↑
T ↑
const

- none of these
- first decrease and then increase

2a

Points	Conditional Points	Submissions Override
2a <input style="width: 50px;" type="text" value="1"/>	edit* <i>17.5 → 1mole</i>	<input style="width: 50px;" type="text" value=""/>

3. Hecht2 12.MC.009. [14751] Given that we have 17.0 g of ammonia gas (NH₃), the volume it occupies at STP is

PV = nRT

- 17 liters
- 22.4 × 10⁶ m³
- 22.4 liters
- none of these
- 17 m³

3a

Points	Conditional Points	Submissions Override
3a <input style="width: 50px;" type="text" value="1"/>	edit*	<input style="width: 50px;" type="text" value=""/>

4. Hecht2 12.MC.010. [14752] According to Kinetic Theory, the molecules of a gas at a given temperature

- all move with a speed *v_{rms}*
- all move at speeds in excess of *v_{rms}*
- move at speeds above, at, and below *v_{rms}*
- none of these
- all move at speeds less than *v_{rms}*

4a

Points	Conditional Points	Submissions Override
4a <input style="width: 50px;" type="text" value="1"/>	edit*	<input style="width: 50px;" type="text" value=""/>

5. Hecht2 12.MC.012. [14754] A sample of gas is held at a constant pressure in a cylinder closed by a movable piston. If the volume is halved, how will the new *rms*-speed of the molecules compare with the original *rms*-speed? It will be

- 1/√2* times greater
- the same
- none of these
- 4 times greater
- 2 times greater

Handwritten notes:
 ~~$P \propto \frac{1}{T}$~~
 $P \downarrow \rightarrow T \downarrow \rightarrow KE \downarrow \rightarrow v_{rms} \downarrow$
 $\frac{PV}{T} = \text{const}$
 $\frac{1}{2} \cdot \frac{1}{2} = \frac{1}{2}$
 $\frac{1}{\sqrt{2}}$

5a

Points	Conditional Points	Submissions Override
5a <input style="width: 50px;" type="text" value="1"/>	edit*	<input style="width: 50px;" type="text" value=""/>

6. Hecht2 12.MC.013. [14755] A sample of gas is held at a constant pressure in a cylinder closed

by a movable piston. If the volume is doubled, how will the new *rms*-speed of the molecules compare with the original *rms*-speed? It will be

- the same
- 2 times greater
- $\sqrt{2}$ times greater
- none of these
- 4 times greater

$PV \rightarrow P \cdot 2V \rightarrow \frac{1}{2} KE \rightarrow \sqrt{2}$
 $\sqrt{2KE} = \frac{1}{2}mv^2$
 $\frac{PV}{T}$

6a

	Points	Conditional Points	Submissions Override
6a	1	edit	-

7. Hecht2 12.MC.017. [14759] According to Kinetic Theory, the molecules of a gas at a given temperature

- all have the same speed
- all have the same direction of motion
- none of these
- all have the same momentum
- all have the same kinetic energy

move w/ diff. speeds @
diff. direct

7a

	Points	Conditional Points	Submissions Override
7a	1	edit	-

8. Hecht2 13.MC.001. [14873] Two bodies that are not initially in thermal equilibrium are placed in intimate contact. After a while the

- temperature of the cooler one will rise the same number of kelvins as the temperature of the hotter one drops
- amount of thermal energy contained by both bodies will be equal
- none of these
- thermal conductivity of each body will be the same
- specific heats of both bodies will be equal

8a

	Points	Conditional Points	Submissions Override
8a	1	edit	-

9. Hecht2 13.MC.002. [14874] An open beaker of pure water is gently boiling at atmospheric pressure. A thermometer held deep in the water will likely read a temperature

- equal to 100°C *phase change*
- a little less than 100°C
- a little greater than 100°C
- none of these
- equal to 212°C

9a

Points	Conditional Points	Submissions Override
--------	--------------------	----------------------

9a [edit](#)

10. Hecht2 13.MC.003. [14875] Two blocks of aluminum, one having a mass of 1.0-kg, the other having a mass of 2.0-kg, are in thermal equilibrium with a third block of brass at 100°C. The two aluminum blocks are at temperatures, respectively, of

- 100°C and 50°C
- 50°C and 100°C
- 100°C and 100°C
- none of these
- 200°C and 100°C

10a

	Points	Conditional Points	Submissions Override
10a	<input type="text" value="1"/>	edit	<input type="text" value="-"/>

11. Hecht2 13.MC.005. [14877] An open pot of water is boiling on a gas stove when someone raises the flame. The result will be

- a substantial increase in the temperature of the water
- a tiny decrease in the rate of evaporation
- an increase in the rate of boiling
- none of these
- an appreciable increase in both the rate of boiling and in the temperature of the water

11a

	Points	Conditional Points	Submissions Override
11a	<input type="text" value="1"/>	edit	<input type="text" value="-"/>

12. Hecht2 13.MC.014. [14886] Which of the following materials has the highest thermal conductivity?

- wood 1.8
- water 4.186
- gold .13
- none of these
- air 1

*(C) spec. heat - Num of Joules that must be added to raise 1g of material 1°C
Want smallest spec heat*

12a

	Points	Conditional Points	Submissions Override
12a	<input type="text" value="1"/>	edit	<input type="text" value="-"/>

13. Hecht2 13.MC.015. [14887] The purpose of a cover on a soup tureen is to

- increase conductivity
- increase radiation
- decrease convection
- none of these
- decrease conduction

13a

	Points	Conditional Points	Submissions Override
13a	1	edit	-

14. Hecht2 13.MC.019. [14891] Franklin's experiment (Fig. MC19) consists of a glass bulb connected to a wide, initially open tube. The whole thing is heated until steam drives the air from the cylinder, whereupon it is sealed. Then, by holding the bulb in the hand, the water is warmed and boils in the tube because



Figure MC19.

- the temperature can quickly reach 100°C
- the water is a good conductor and the heat travels to the cylinder where it is concentrated
- the vapor pressure in the cylinder is quite low
- none of these
- radiation is trapped in the connecting tube and brought to bear on the cylinder

14a

	Points	Conditional Points	Submissions Override
14a	1	edit	-

15. Hecht2 13.MC.020. [14892] Contemporary radiators of all sorts consist of the heated body-a pipe or transistor, for example-to which are affixed a series of spaced flat vanes, often painted black. The function of the vanes is to

- increase the convection currents and so decrease conduction
- increase the ability to block air currents thereby increasing conduction
- increase the heated surface area to increase radiation and convection
- none of these
- conduct more heat to the stagnant air layer and so increase radiation

15a

	Points	Conditional Points	Submissions Override
15a	1	edit	-

16. Hecht2 13.MC.013. [14885] Suppose you pour a hot cup of coffee and the phone rings so you can't drink it. To keep it hot as long as possible

- don't add the cool milk until you're ready to drink it
- stir it once gently without the milk, but don't add the sugar
- add the cool milk and sugar immediately
- none of these
- don't add the milk and use a black mug if possible

16a

	Points	Conditional Points	Submissions Override
16a	<input type="text" value="1"/>	edit	<input type="text" value="-"/>

17. Giancoli 5 13.P.038. [50661] If 40.0 L of oxygen at 16.0°C and an absolute pressure of 2.45 atm are compressed to 33.8 L and at the same time the temperature is raised to 50°C, what will the new pressure be?

17a atm

	Points	Conditional Points	Submissions Override
17a	<input type="text" value="1"/>	edit	<input type="text" value="-"/>

Total: 17 ([update total](#))

Submission Options

- Allow per question submission.
 - Deliver all questions at once.
 - Deliver questions one at a time.
- Require submission of entire assignment.
 - All questions delivered at once. Submissions Override unavailable.
- Randomize question order.

Administration Settings (Hide)

Save these Administration Settings as my default

Feedback use the pulldown menu above as a shortcut for the options below

		Before due date	After due date	
Submissions Allowed	<input type="text" value="Five"/>			
Category	<input type="text" value="Homework"/> My Categories	<input type="checkbox"/>	<input type="checkbox"/>	Nothing
Code	<input type="text"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Save Work
Permission	<input type="text" value="Protected"/> My Groups	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Response [Only the last]
Randomization	<input type="text" value="Person"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Assignment Score
Which graded	<input type="text" value="Last"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Question Score
Author	Berke, Debbi (dberke@commack.k12.ny.us)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Question Part Score
		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Mark
		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Publish Essay Scores
		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Help/Hints
		<input type="checkbox"/>	<input checked="" type="checkbox"/>	Key