

Name:

Practice Heat and Temperature Test

- The elements located in the lower left corner of the Periodic Table are classified as
 - nonmetals
 - noble gases
 - metals
 - metalloids
 - Which element is a noble gas?
 - W
 - Ar
 - N
 - Er
 - Which element is a liquid at room temperature?
 - I₂
 - Hg
 - K
 - Mg
 - Which element is an alkali metal?
 - Cl
 - Mg
 - Na
 - Al
 - Which Group 15 element exists as a diatomic molecule at STP?
 - nitrogen
 - phosphorus
 - arsenic
 - bismuth
 - Alkali metals, alkaline earth metals, and halogens are elements found respectively in Groups
 - 1, 2, and 18
 - 2, 13, and 17
 - 1, 2, and 14
 - 1, 2, and 17
 - Which term is defined as a measure of the average kinetic energy of the particles in a sample?
 - temperature
 - thermal energy
 - pressure
 - chemical energy
 - At which temperature would atoms of a He(g) sample have the greatest average kinetic energy?
 - 298 K
 - 273 K
 - 25°C
 - 37°C
 - The average kinetic energy of water molecules is greatest in which of these samples?
 - 10 g of water at 55°C
 - 100 g of water at 45°C
 - 10 g of water at 35°C
 - 100 g of water at 25°C
 - As the temperature of a sample of H₂O(l) decreases, the average kinetic energy of its molecules will
 - decrease
 - increase
 - remain the same
 - Which temperature is equal to +20 K?
 - 253°C
 - 293°C
 - 253°C
 - 293°C
- Show math.
- Which temperature represents absolute zero?
 - 0 K
 - 0°C
 - 273 K
 - 273°C

Practice Heat and Temperature Test

13. How many Joules of heat energy are released when 50. grams of water are cooled from $70.^{\circ}\text{C}$ to $60.^{\circ}\text{C}$?

- (1) 210 J (3) 2100 J
(2) 42 J (4) 4200 J

Show math :

14. A sample of water is heated from 10.0°C to 15.0°C by the addition of 126 Joules of heat. What is the mass of the water?

- (1) 5.00 g (3) 150.0 g
(2) 30.0 g (4) 6.00 g

Show math :

15. When 420 Joules of heat energy is added to 10. grams of water at $20.^{\circ}\text{C}$, the final temperature of the water will be

- (1) 100°C (3) $10.^{\circ}\text{C}$
(2) $30.^{\circ}\text{C}$ (4) $40.^{\circ}\text{C}$

↓
Show math :

Practice Heat and Temperature Test
Answer Key
heat and temperature test [Sep 21, 2010]

1. 3

2. 2

3. 2

4. 3

5. 1

6. 4

7. 1

8. 4

9. 1

10. 1

11. 1

$$\rightarrow K = ^\circ C + 273 \quad 20K = ^\circ C + 273 \quad 20K - 273 = ^\circ C$$

12. 1

$$Q = mc\Delta T \quad Q = 50g \times \frac{4.18 J}{g^\circ C} \times (70^\circ C - 60^\circ C)$$

13. 3

14. 4

$$\rightarrow Q = mc\Delta T \quad 126 J = m \times \frac{4.18 J}{g^\circ C} \times 5^\circ C$$

15. 2

$$126 J = m \times 20.9 \frac{J}{g}$$

$$\frac{126 J}{20.9 \frac{J}{g}} = 6.00 g$$

$$Q = mc\Delta T$$

$$420 J = 10g \times \frac{4.18 J}{g^\circ C} \times \Delta T$$

$$\frac{420 J}{10g \times \frac{4.18 J}{g^\circ C}} = \Delta T$$

$$10^\circ C = \Delta T$$

$$\begin{aligned} \text{Final Temp} &= (\text{initial temp} + \Delta T) \\ &= 20^\circ C + 10^\circ \\ &= 30^\circ C \end{aligned}$$