

For answers, send email to: [admin@tutor-homework.com](mailto:admin@tutor-homework.com).

**Include file name:** Chemistry\_Worksheet\_0052

Price: \$3

(c) 2012 [www.tutor-homework.com](http://www.tutor-homework.com): Tutoring, homework help, help with online classes.

**1. 016 Chapter #021**

What is the pOH of a 0.0085 M KOH solution?

Student Response	Value	Correct Answer	Feedback
a. 2.1			
b. 4.8			
c. 9.2			
d. 11.9			
e. None of these choices is correct.			

Score: 5/5

**2. 016 Chapter #031**

Acid strength decreases in the series  $\text{HI} > \text{HSO}_4^- > \text{HF} > \text{HCN}$ . Which of these anions is the weakest base?

Student Response	Value	Correct Answer	Feedback
a. $\text{I}^-$			
b. $\text{SO}_4^{2-}$			
c. $\text{F}^-$			
d. $\text{CN}^-$			

Score: 5/5

**3. 016 Chapter #082**

In aqueous solutions at 25°C, the sum of the ion concentrations ( $[\text{H}^+] + [\text{OH}^-]$ ) equals  $1 \times 10^{-14}$ .

Student Response	Value	Correct Answer	Feedback
a. TRUE			
b. FALSE			

Score: 5/5

4. **016 Chapter #073**

Which one of the following is a Lewis acid but not a Brønsted-Lowry acid?

Student Response	Value	Correct Answer	Feedback
a. $\text{Fe}^{3+}$			
b. $\text{H}_3\text{O}^+$			
c. $\text{HSO}_4^-$			
d. $\text{NH}_3$			
e. $\text{H}_2\text{O}$			

Score: 5/5

5. **016 Chapter #041**

Find the pH of a 0.183 M aqueous solution of hypobromous acid (HOBr), for which  $K_a = 2.06 \times 10^{-9}$ .

Student Response	Value	Correct Answer	Feedback
a. 4.72			
b. 8.69			
c. 3.97			
d. 4.34			
e. 9.28			

Score: 5/5

6. **016 Chapter #002**

What is the name of a proton acceptor in a reaction?

Student Response	Value	Correct Answer	Feedback
a. Arrhenius acid			
b. Arrhenius base			
c. Brønsted-Lowry acid			
d. Brønsted-Lowry base			
e. Lewis base			

Score: 5/5

7. **016 Chapter #051**

A strong acid leads to a:

Student Response	Value	Correct Answer	Feedback
a. weak conjugate acid.			
b. strong conjugate base.			
c. weak conjugate base.			
d. strong base.			
e. pure water.			

Score: 5/5

8. **015 Chapter #002**

Which is the correct equilibrium constant expression for the following reaction?



Student Response	Value	Correct Answer	Feedback
a. $K_c = \frac{[\text{H}_2\text{O}]}{[\text{H}_2]}$			
b. $K_c = \frac{[\text{Fe}][\text{H}_2\text{O}]}{[\text{Fe}_2\text{O}_3]}$			
c. $K_c = \frac{[\text{Fe}_2\text{O}_3][\text{H}_2]}{[\text{Fe}][\text{H}_2\text{O}]}$			
d. $K_c = \frac{[\text{Fe}][\text{H}_2\text{O}]}{[\text{Fe}_2\text{O}_3][\text{H}_2]}$			
e. $K_c = \frac{[\text{H}_2]}{[\text{H}_2\text{O}]}$			

Score: 5/5

9. **015 Chapter #031**

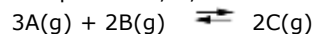
At a certain temperature the reaction  $\text{CO}_2(\text{g}) + \text{H}_2(\text{g}) \rightleftharpoons \text{CO}(\text{g}) + \text{H}_2\text{O}(\text{g})$  has  $K_c = 2.50$ . If 2.00 mol of carbon dioxide and 1.5 mol of hydrogen are placed in a 5.00 L vessel and equilibrium is established, what will be the concentration of carbon monoxide?

Student Response	Value	Correct Answer	Feedback
a. 0.091 M			
b. 0.191 M			
c. 0.209 M			
d. 0.913 M			
e. 1.05 M			

Score: 5/5

10. **015 Chapter #021**

Compounds A, B, and C react according to the following equation.



At 100°C a mixture of these gases at equilibrium showed that  $[\text{A}] = 0.855 \text{ M}$ ,  $[\text{B}] = 1.23 \text{ M}$ , and  $[\text{C}] = 1.75 \text{ M}$ . What is the value of  $K_c$  for this reaction?

Student Response	Value	Correct Answer	Feedback
a. 0.309			
b. 0.601			
c. 1.66			
d. 3.24			
e. greater than 10			

Score: 5/5

11. **016 Chapter #067**

A solution is prepared by adding 0.10 mol of lithium nitrate,  $\text{LiNO}_3$ , to 1.00 L of water. Which statement about the solution is correct?

Student Response	Value	Correct Answer	Feedback
a. The solution is basic.			
b. The solution is neutral.			

c. The solution is weakly acidic.

---

d. The solution is strongly acidic.

---

e. The values for  $K_a$  and  $K_b$  for the species in solution must be known before a prediction can be made.

---

**12. 015 Chapter #041**

Hydrogen sulfide can be formed in the following reaction:

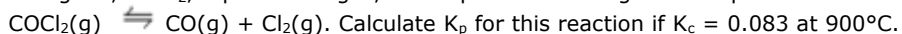


The equilibrium constant  $K_p = 106$  at 1023 K. Estimate the value of  $K_p$  at 1218 K ( $R = 8.314 \text{ J/mol K}$ ).

Student Response	Value	Correct Answer	Feedback
a. 5.05			
b. 18.8			
c. 34.7			
d. 88.9			
e. 598			

**13. 015 Chapter #011**

Phosgene,  $\text{COCl}_2$ , a poisonous gas, decomposes according to the equation



Student Response	Value	Correct Answer	Feedback
a. 0.125			
b. 8.0			
c. 6.1			
d. 0.16			
e. 0.083			

Score: 5/5

14. 015 Chapter #071

75.0 g of  $\text{PCl}_5(\text{g})$  is introduced into a 3.00 L vessel containing 10.0 g of  $\text{Cl}_2(\text{g})$ , and the system is allowed to reach equilibrium at  $250^\circ\text{C}$ .  $\text{PCl}_5(\text{g}) \rightleftharpoons \text{PCl}_3(\text{g}) + \text{Cl}_2(\text{g})$   
If  $K_p = 1.80$  for this reaction, what is the total pressure inside the vessel at equilibrium ( $R = 0.0821 \text{ atm L/mol K}$ )?

Student Response	Value	Correct Answer	Feedback
a. 6.83 atm			
b. 8.85 atm			
c. 5.38 atm			
d. 3.47 atm			
e. 7.42 atm			

15. 015 Chapter #081

If the system  $3\text{H}_2(\text{g}) + \text{N}_2(\text{g}) \rightleftharpoons 2\text{NH}_3(\text{g})$  is at equilibrium and more  $\text{N}_2$  is added, a net reaction that consumes some of the added  $\text{N}_2$  will occur until a new equilibrium is reached.

Student Response	Value	Correct Answer	Feedback
a. TRUE			
b. FALSE			

Score: 5/5

16. 015 Chapter #055

Consider the following reactions and their associated equilibrium constants:



For the reaction  $\text{A} + 2\text{B} \rightleftharpoons \text{D} + \text{E}$ , having equilibrium constant  $K_c$ ,

Student Response	Value	Correct Answer	Feedback
a. $K_c = K_1 + K_2$ .			
b. $K_c = K_1/K_2$ .			
c. $K_c = K_1 - K_2$ .			

d.  $K_c = (K_1)(K_2)$ .

---

e.  $K_c = K_2/K_1$ .

---

Score: 5/5

**17. 015 Chapter #061**

In which of these gas-phase equilibria is the yield of products increased by increasing the total pressure on the reaction mixture?

Student Response	Value	Correct Answer	Feedback
a. $\text{CO(g)} + \text{H}_2\text{O(g)} \rightleftharpoons \text{CO}_2\text{(g)} + \text{H}_2\text{(g)}$			
b. $2\text{NO(g)} + \text{Cl}_2\text{(g)} \rightleftharpoons 2\text{NOCl(g)}$			
c. $2\text{SO}_3\text{(g)} \rightleftharpoons 2\text{SO}_2\text{(g)} + \text{O}_2\text{(g)}$			
d. $\text{PCl}_5\text{(g)} \rightleftharpoons \text{PCl}_3\text{(g)} + \text{Cl}_2\text{(g)}$			
e. $2\text{H}_2\text{O}_2\text{(g)} \rightleftharpoons 2\text{H}_2\text{O(g)} + \text{O}_2\text{(g)}$			

Score: 5/5

**18. 016 Chapter #011**

Identify the conjugate base of  $\text{HPO}_4^{2-}$  in the reaction  $\text{HCO}_3^- + \text{HPO}_4^{2-} \rightleftharpoons \text{H}_2\text{CO}_3 + \text{PO}_4^{3-}$ .

Student Response	Value	Correct Answer	Feedback
a. $\text{H}_2\text{O}$			
b. $\text{HCO}_3^-$			
c. $\text{H}_2\text{CO}_3$			
d. $\text{PO}_4^{3-}$			
e. None of these			

choices is correct.

---

Score: 5/5

**19. 015 Chapter #048**

At 35°C, the equilibrium constant for the reaction  $2\text{NOCl}(\text{g}) \rightleftharpoons 2\text{NO}(\text{g}) + \text{Cl}_2(\text{g})$  is  $K_c = 1.6 \times 10^{-5}$ . An equilibrium mixture was found to have the following concentrations of  $\text{Cl}_2$  and  $\text{NOCl}$ :  $[\text{Cl}_2] = 1.2 \times 10^{-2}$  M;  $[\text{NOCl}] = 2.8 \times 10^{-1}$  M. Calculate the concentration of  $\text{NO}(\text{g})$  at equilibrium.

Student Response	Value	Correct Answer	Feedback
a. $1.0 \times 10^{-4}$ M			
b. $1.0 \times 10^{-2}$ M			
c. $2.8 \times 10^{-1}$ M			
d. $2.4 \times 10^{-2}$ M			
e. $1.6 \times 10^{-3}$ M			

Score: 0/5

**20. 016 Chapter #057**

Ammonium chloride is used as an electrolyte in dry cells. Which of the following statements about a 0.10 M solution of  $\text{NH}_4\text{Cl}$ , is correct?

Student Response	Value	Correct Answer	Feedback
a. The solution is weakly basic.			
b. The solution is strongly basic.			
c. The solution is neutral.			
d. The solution is acidic.			
e. The values for $K_a$ and $K_b$ for the			



species in  
solution  
must be  
known  
before a  
prediction  
can be  
made.

---

Score: 5/5