

AP CHEMISTRY SUMMER WORK 2016 Name _____

Welcome to AP Chemistry. In order to cover all of the material I have found that you need to start before September to review your sophomore chemistry course.

I will collect your work on the first day of school. Problems will be graded.
Use the answer sheet provided.

I encourage you to work together with your classmates.

After a short period of review, we will have a test over this assignment.

In the textbook Chemistry, Zumdahl 7th Edition, complete on the answer sheet attached:

Read Chapters 1-4, Ch 5 179-186

Chapter 1: 5, 28, 32, 64, 83

Chapter 2: 11,19,20,22,24,28,42,50,65,66,70,74

Chapter 3: 16,30,52,56,60,68,74,82,90,100,104,106

Chapter 4: 4,6, 16,18,22,24,30, 36, 44,48,50,54bc,64,70,74a

Chapter 5: 31ab, 34,36,38,40,46, 95b-e

In addition to the above questions, please

Know all the ions pgs 58,59, and 62

Know your solubility rules on pg 144

Materials : one 3 inch binder, 10 dividers, and a graphing calculator

Obtain 10 dividers for your binder Label the dividers with these titles:	Label divider slip
Stoichiometry, redox, combustion train	1-4
Gases	5
Equilibrium : K_{eq} , K_c , K_p	13
Acid-Base: pH, pOH, K_a , K_b , buffers, K_{sp}	14,15
Atomic Structure, Periodic Trends, Bonding	7-9
Intermolecular Forces, Solids, Liquids	10
Thermodynamics	6,16
Chemical Kinetics	12,21
Electrochemistry	17
Lab Reports	Labs

Directions: **No credit unless work is shown. Pay attention to sig figs. Box answers.**
Credit will not be awarded for illegible work.

Ch. 1

5a) _____

5b) _____ change.

Explanation:

28a) _____

c) _____

e) _____

g) _____

b) _____

d) _____

f) _____

h) _____

32a) _____

b) _____

c) _____

d) _____

64a) _____

b) _____

c) _____

83a) _____

b) _____

c) _____

Ch 2

11.

19. JJ. Thomsen: _____

Rutherford: _____

20. Modern view

22. a)

b)

c)

d)

24.

Correct name	Why aren't other names used/
a)	
b)	
c)	

28)

42a) _____ b) _____ c). _____ d) _____

50.

symbol	#p+	#n	#e-	Net charge

64

a	b	c	d	e	f
g	h	i	j	k	l

66

a	b	c	d	e
f	g	h	i	j

70

a	b	c	d	e
f	g	h	i	j

ion	#p+	#e-	formula
A			
B			
C			
D			
E			
F			
G			
H			

Ch 3

16.

30. You must show work! Box answer

52a.

molar mass of aspirin = _____

For b, you must show conversion factors to receive credit

b.(i) # moles of aspirin

(ii) # molecules of aspirin

56: show work!

Mass of sample	Moles of sample	Molecules in sample	Total atoms in sample
4.24 g C ₆ H ₆			
	0.224 mol H ₂ O		
		2.71 x 10 ²²	
			3.35 x 10 ²²

60.

% C = _____ % H = _____

% O = _____ % F = _____

68. a) _____ b) _____ c) _____ d) _____

Show work here;

74. Box answers

82a. _____

82b. _____

82c. _____

82d. _____

90. Remember the cliffs of Dover method you used in sophomore chemistry.. show all work and box answer.

Moles

Reaction

Grams

Packet

100.

104.

a.

b.

limiting= _____

excess = _____

c.

d. % yield = _____

106. Box answer

Ch 4

4. Use colored pencils and clearly label the ions.

Balanced equation: _____

6.

16(i) what does charge balanced mean?

(ii) what does mass balanced mean?

(iii) how are redox reactions charge balanced?

18. a) _____ c) _____ Which picture is nitric acid? _____

b) _____ d) _____ Why aren't any pictures good for acetic acid? _____

22.

24.a. $[\text{Na}^+] =$ _____ $[\text{PO}_4^{3-}] =$ _____ b. $[\text{Ba}^{2+}] =$ _____ $[\text{NO}_3^-] =$ _____

c. $[\text{K}^+] =$ _____ $[\text{Cl}^-] =$ _____ d. ammonium = _____ sulfate = _____

30. Formula used _____

a) _____ b) _____

c) _____ d) _____

36. _____

44. a. _____

44b. _____

44c. _____

44d. _____

48. Balanced equation: _____ Show work below.

50. Balanced equation: _____
Calculations:

54b. _____

c.

64. Balanced equation: _____
Calculations:

70.

a	b	c	d	e	f
g	h	i	j	k	l

74a. (i) Write reaction and assign oxidation numbers:

(ii) Balanced oxidation $\frac{1}{2}$ reaction _____

(iii) Balanced reduction $\frac{1}{2}$ reaction _____

(iv) Overall balanced equation _____

Ch 5

31a). _____ torr _____ atm _____ Pa b) _____ torr _____ atm _____ Pa

34. Formula used:

36. Since gases are at the same temp and pressure, coefficients can stand for _____ ratios
_____ ml dinitrogen tetroxide

38. Formula used:

P	V	n	T
A			
B			
C			
D			

40. Formula used:

46. Formula used:

a.

b.

c.

95. a)

b)

c)

d)

e)

5a)iv water vapor b) boiling is a physical change

28a)1 b)2 c)3 d)3 e)2 f)3 g)3 h)4 32)a 2.26 b) 8.4×10^{22} c) 1.5×10^5 d) 6.67×10^{12}

64) $3.0 \times 10^5 \text{ cm}^3 \text{ H}_2$ 25.0 cm³ H₂O(l) 3.18 cm³ Fe ; gases are much less dense than solids!

Ch 2

2) mass of chalk before writing- mass of chalk after writing = g CaCO₃

Molecules CaCO₃ = g CaCO₃ x $\frac{6.02 \times 10^{23} \text{ molecules}}{100 \text{ g CaCO}_3}$

20) Modern view: electrons occupy most of the volume of the atom. Most of mass is in nucleus with protons and neutrons.

Electrons occupy orbitals but the exact position of an electron cannot be determined. Mass of electron is much less than mass of proton or mass of neutron

22a) mol

ecule

is neutral; ion has a charge