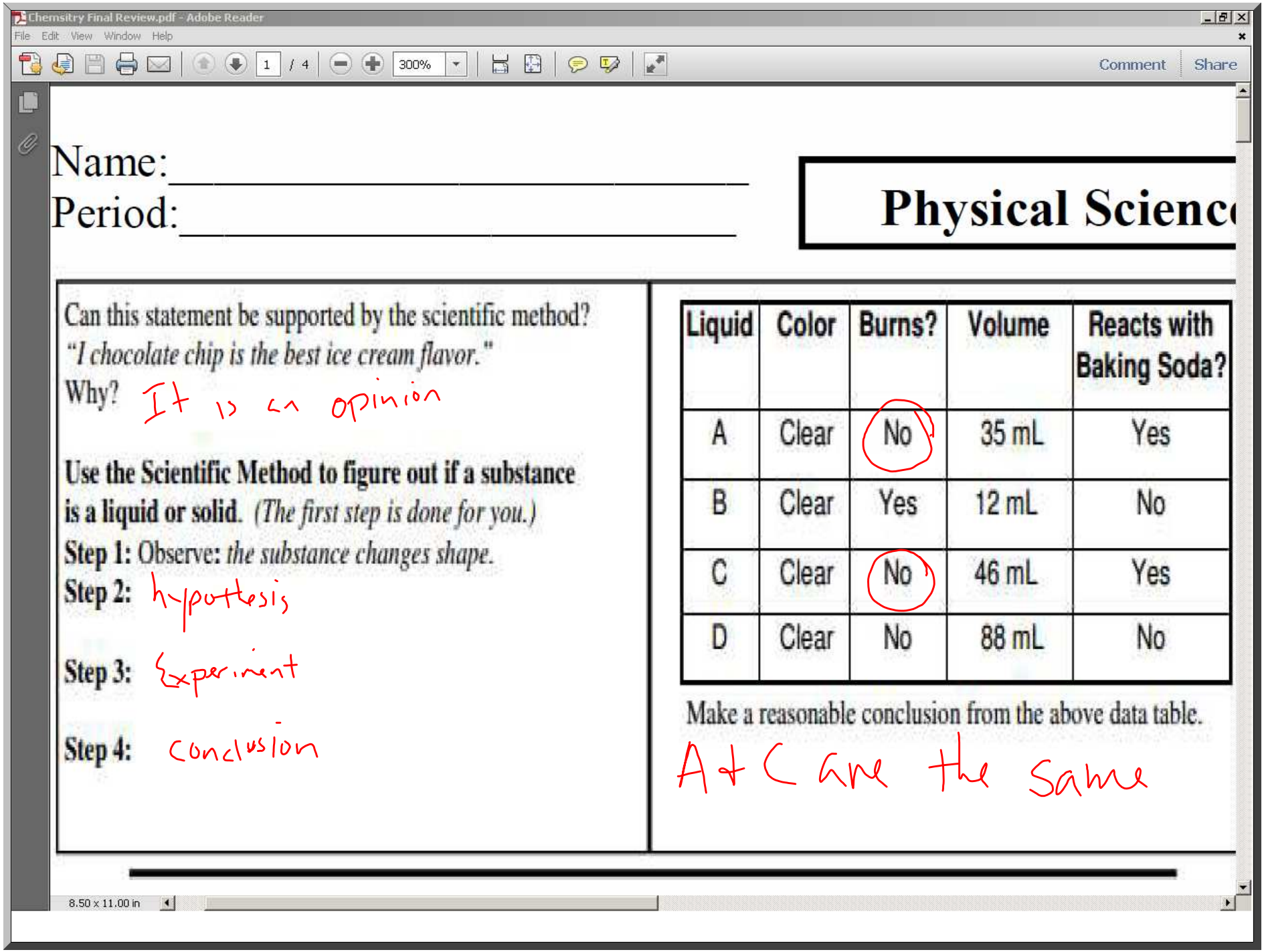
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Name:
Period:
Physical Scienc
Can this statement be supported by the scientific method?
"I chocolate chip is the best ice cream flavor."
Why? It is an opinion
Use the Scientific Method to figure out if a substance is a liquid or solid. (The first step is done for you.)
Step 1: Observe: the substance changes shape.
Step 2: hypothesis
Step 3: Experiment
Step 4: conclusion
Liquid | Color | Burns? | Volume | Reacts with Baking Soda?
A | Clear | No | 35 mL | Yes
B | Clear | Yes | 12 mL | No
C | Clear | No | 46 mL | Yes
D | Clear | No | 88 mL | No
Make a reasonable conclusion from the above data table.
A + C are the same
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l Science-Chemistry Final Review

	Reacts with Baking Soda?
	Yes
	No
	Yes
	No

above data table.

How is a solid different from a liquid?

Liquids change shape

Solids don't

How is a solid similar to (like) a liquid?

Both Keep their volume

How is a liquid different from a gas?

Gases take the form of their Container

How is a liquid similar to (like) a gas?

Both can change shape

What causes a substance to change phase?

add or take away energy

When a substance changes phase, is this a physical or chemical change?

it is still Water

The tem liquid is

The tem gas is ca

The tem liquid:

The tem solid:

When a

At what At what

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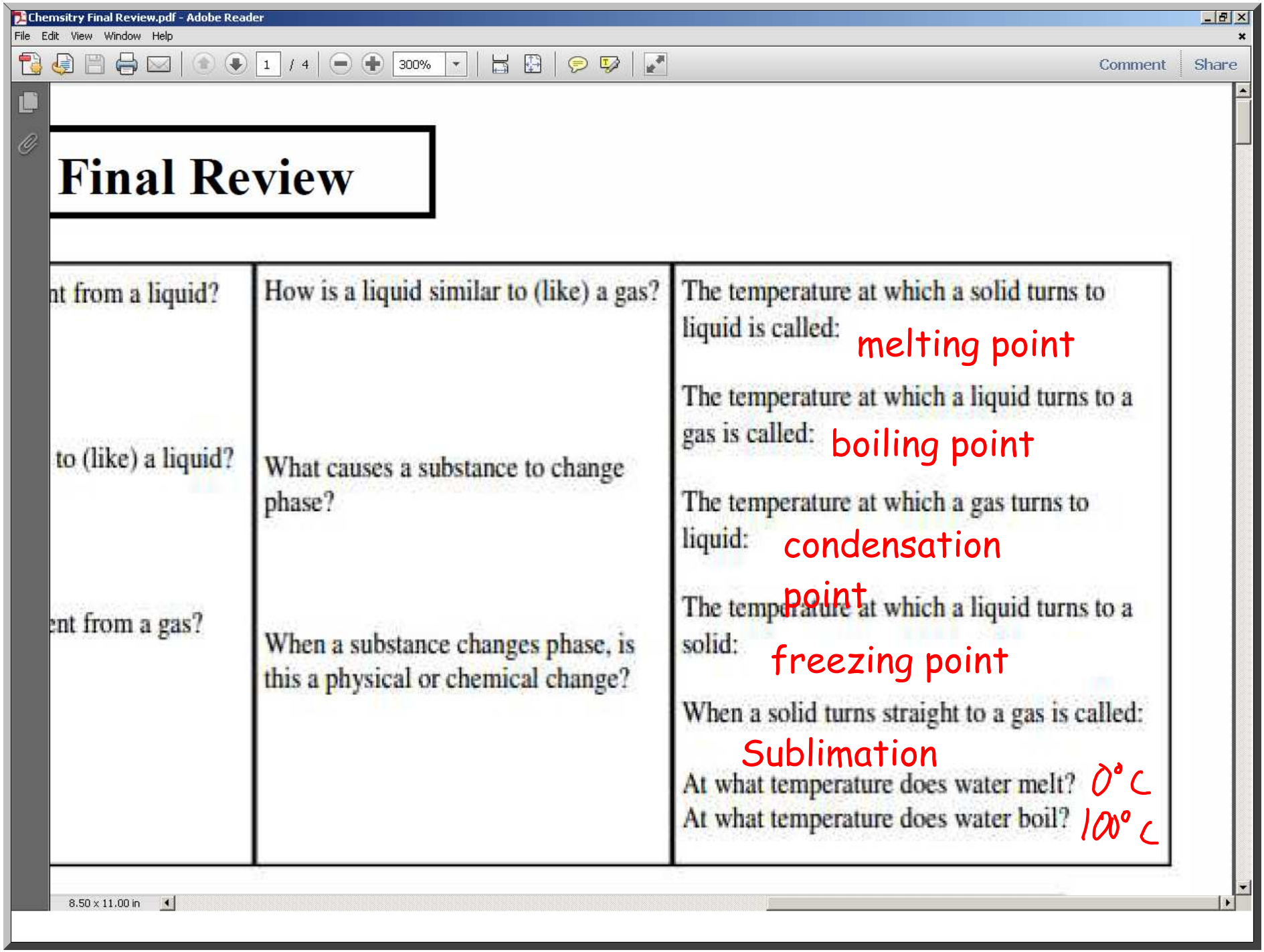
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Final Review
nt from a liquid?
to (like) a liquid?
ent from a gas?
How is a liquid similar to (like) a gas?
What causes a substance to change phase?
When a substance changes phase, is this a physical or chemical change?
The temperature at which a solid turns to liquid is called: melting point
The temperature at which a liquid turns to a gas is called: boiling point
The temperature at which a gas turns to liquid: condensation point
The temperature at which a liquid turns to a solid: freezing point
When a solid turns straight to a gas is called: Sublimation
At what temperature does water melt? 0° C
At what temperature does water boil? 100° C
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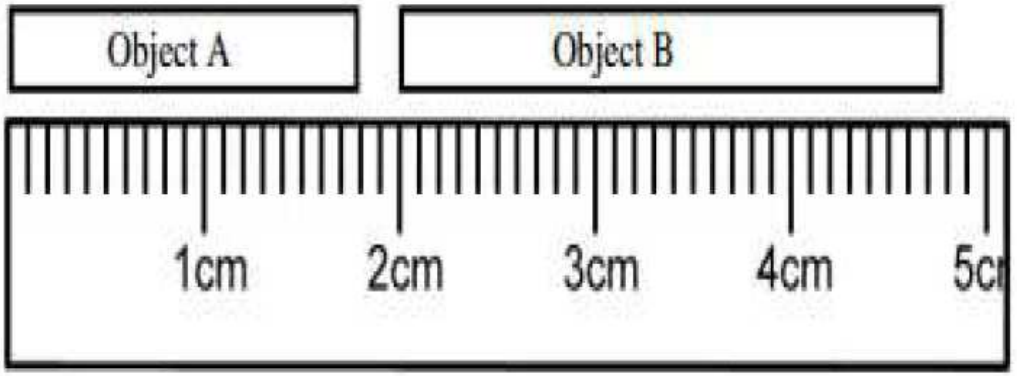
Step 4:

Make a reasonable conclusion from the above data t



How many millimeters is object A?

18mm

How many centimeters is object A?

1.8cm

How many meters is object A?

0.018m

How many millimeters is object B?

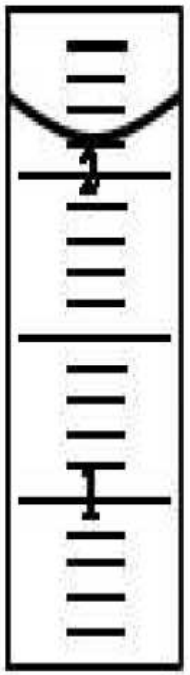
28mm

How many centimeters is object B?

2.8cm

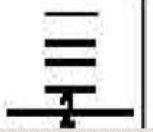
How many meters is object B?

0.028m



How many mL of wate is there in the graduate cylinder?

What is the curve of water called?



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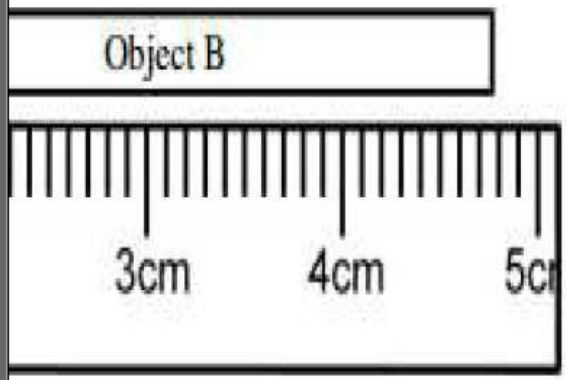
Make a reasonable conclusion from the above data table.

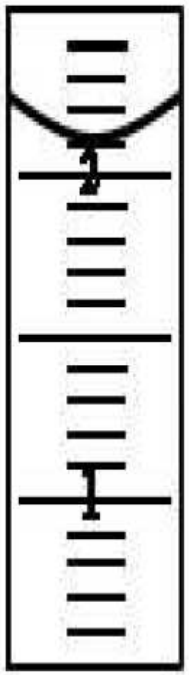
Object B



How many millimeters is object B?

How many centimeters is object B?

How many meters is object B?

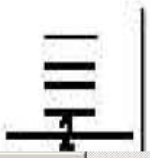


How many mL of water is there in the graduated cylinder?

2.1ml

What is the curve of water called?

the meniscus



Mixture (M) or Subs

Salt Water _____

Water _____

Silver _____

Homogenous (Ho) or H

Salt Water _____

Tomato Soup _____

Jello with Fruit _____

What do we call things th

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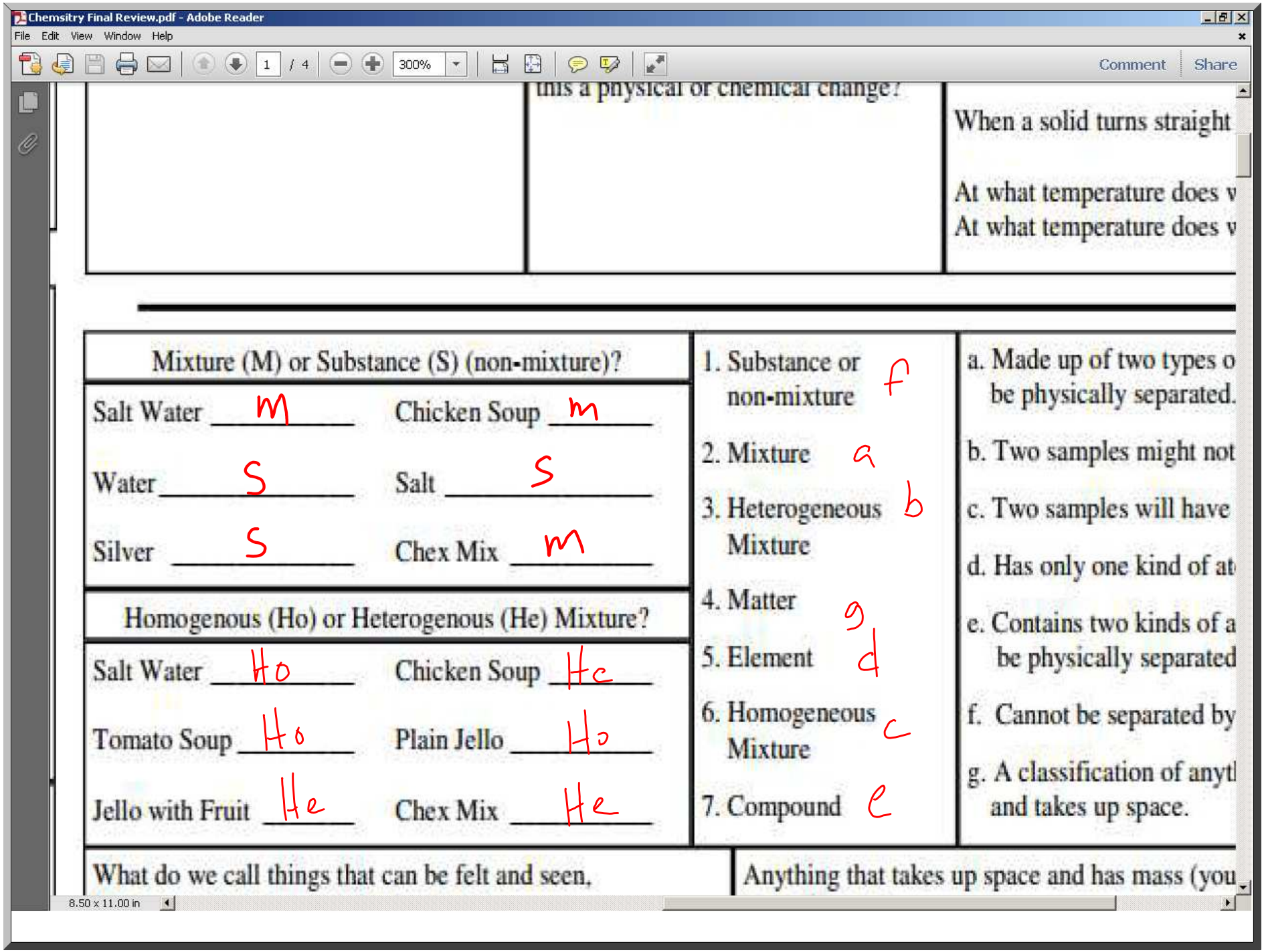
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this a physical or chemical change?
When a solid turns straight
At what temperature does v
At what temperature does v
Mixture (M) or Substance (S) (non-mixture)?
Salt Water m
Chicken Soup m
Water S
Salt S
Silver S
Chex Mix m
Homogenous (Ho) or Heterogenous (He) Mixture?
Salt Water Ho
Chicken Soup He
Tomato Soup Ho
Plain Jello Ho
Jello with Fruit He
Chex Mix He
1. Substance or non-mixture f
2. Mixture a
3. Heterogeneous Mixture b
4. Matter g
5. Element d
6. Homogeneous Mixture c
7. Compound e
a. Made up of two types o be physically separated.
b. Two samples might not
c. Two samples will have
d. Has only one kind of at
e. Contains two kinds of a be physically separated
f. Cannot be separated by
g. A classification of anyt and takes up space.
What do we call things that can be felt and seen,
Anything that takes up space and has mass (you
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How many millimeters is object A?

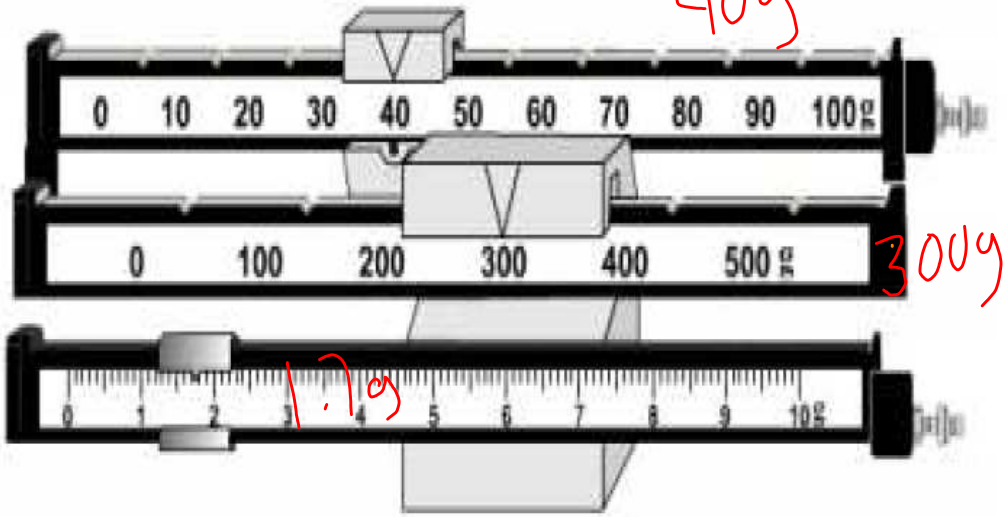
How many centimeters is object A?

How many meters is object A?

How many millimeters is object B?

How many centimeters is object B?

How many meters is object B?

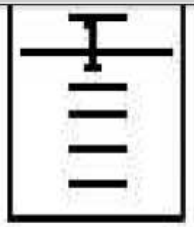


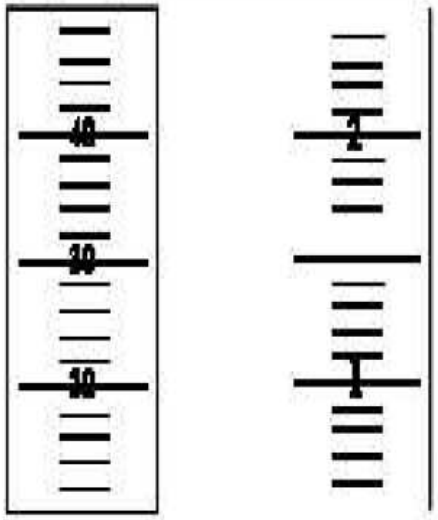
40g

300g

1.7g

How much mass is shown above? 341.7g





Which of the two cylinders above is more precise?

Why? the right one the gradients are smaller

Which object is the less dense?

Object A Object B

What unit do you use to measure the following?

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Jello with Fruit _____ Chex Mix _____ 7. Compound and takes up space.

What do we call things that can be felt and seen, but we cannot touch and has no mass?

Energy

Anything that takes up space and has mass (you can touch it, feel it, see it, etc):

Matter

Draw the metric prefixes chart here:

K H D Base d c m

What is the correct order shortest to longest?

Kilogram milligram Megagram gram centimeter microgram

micro, milli, centi, gram, kilo Mega

Which is bigger?

Mega- or kilo-?

Centi- or milli-?

Micro- or milli-?

Centi- or micro-?

Kilograms or grams?

How Big Are They Really?

A centimeter is the width of: pinky

The size of a liter is: larger than a quart

A meter is how many feet? 3.3ft

A gram is about: $ bill

A millimeter is the width of: fingernail

Convert the following

3.2 kilometers = 3200 meters

0.23 centimeters = 2300 micrometers

0.12 liter = 120 milliliters

2500 milliliters = 2.5 liters

4500 grams = 4.5 kilograms

9 kilograms = 9,000 grams

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50 g 80 g

A 15 g object has a volume of 30 cm^3. Find its density.

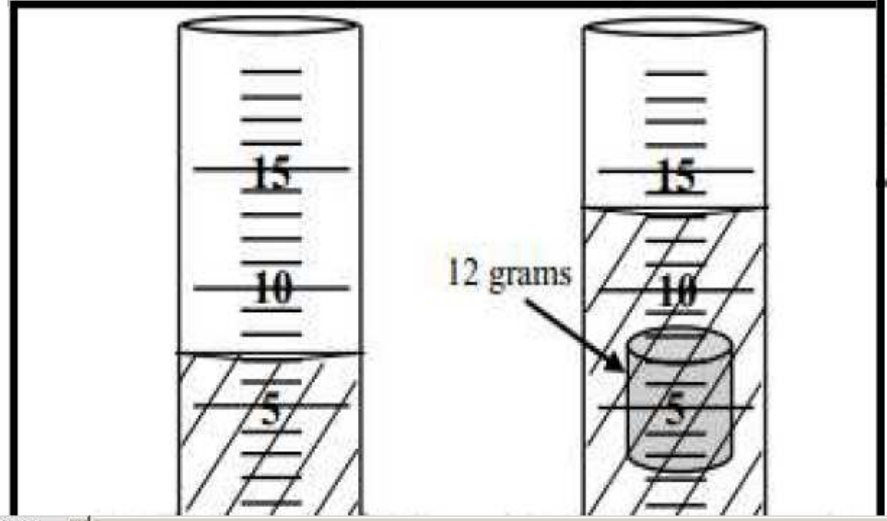
$d = m/v$ $\frac{15\,g}{30\,cm^3} = 0.5\,g/cm^3$

A 12 g object has a volume of 6 mL. Find its density.

$\frac{12\,g}{6\,ml} = 2\,g/ml$

A 35 mL object has a density of 2 g/mL. Find its mass.

$m = d \cdot v = 2\,g/ml \cdot 35\,ml = 70\,g$



How do you measure the mass of a liquid?

mass pot − mass pot+liquid = mass liquid

How do you measure the volume of a floating object?

Push it down

Which is more dense: liquid iron or solid iron?

Which is more dense: gaseous CO_2 or liquid CO_2?

Which is more dense: liquid water or solid water?

A 200 g object displaces 150 g of water. Float or sink?

A 300 g object displaces 350 g of water. Float or sink?

A 250 g object displaces 300 g of water. How much ca can it hold?

Which liquid is which? A, B, or C

D = 1.00 g/mL = Liquid ___

D = 0.75 g/mL = Liquid ___

D = 1.83 g/mL = Liquid ___

Label the liquid you know.

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a liquid?

of a floating object?

or solid iron?
$_2$ or liquid CO_2?
r or solid water?

water. Float or sink?
water. Float or sink?

water. How much cargo

l is which? A, B, or C?
g/mL = Liquid ___
g/mL = Liquid ___
g/mL = Liquid ___

uid you know.

1. Isotope D	A. An average of all the isotopes; the mass of average atom.
2. Atomic mass A	B. An atom with an equal number of electrons and protons.
3. Atomic # F	C. An atom with more or less electrons than protons.
4. Neutral atom B	D. A variation of an element with a different number of neutrons.
5. Ion C	E. Total number of protons and neutrons in the nucleus.
6. Mass # E	F. Number of protons; determines the element.

Metal or Non-metal?

____ Titanium (___) ____ Neon (___)

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charge tell us Location

Protons

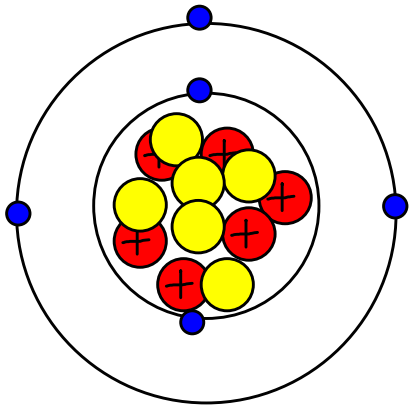
Neutrons

Electrons

→ 6 P

→ C N

→ 12 E



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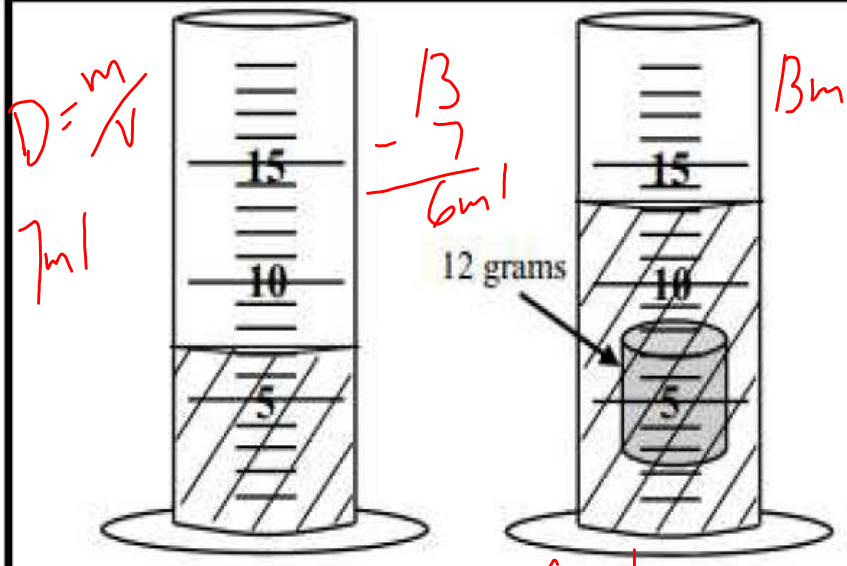
A 35 mL object has a density of 2 g/mL. Find its mass.



What is the volume of the object?

What is the object's density?

Which is more dense: liquid iron or solid iron?

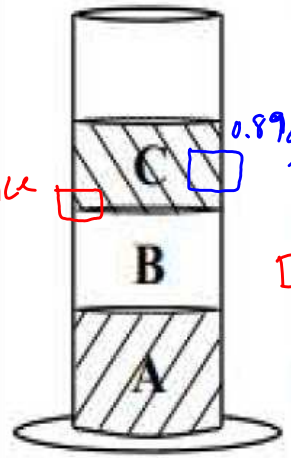
Which is more dense: gaseous CO_2 or liquid CO_2?

Which is more dense: liquid water or solid water?

A 200 g object displaces 150 g of water. Float or sink?

A 300 g object displaces 350 g of water. Float or sink?

A 250 g object displaces 300 g of water. How much can it hold?



Which liquid is which? A, B, or C

D = 1.00 g/mL = Liquid B

D = 0.75 g/mL = Liquid C

D = 1.83 g/mL = Liquid A

Label the liquid you know.

Draw where ice will be in the colu

In the column, where would a cub density 0.89 be?

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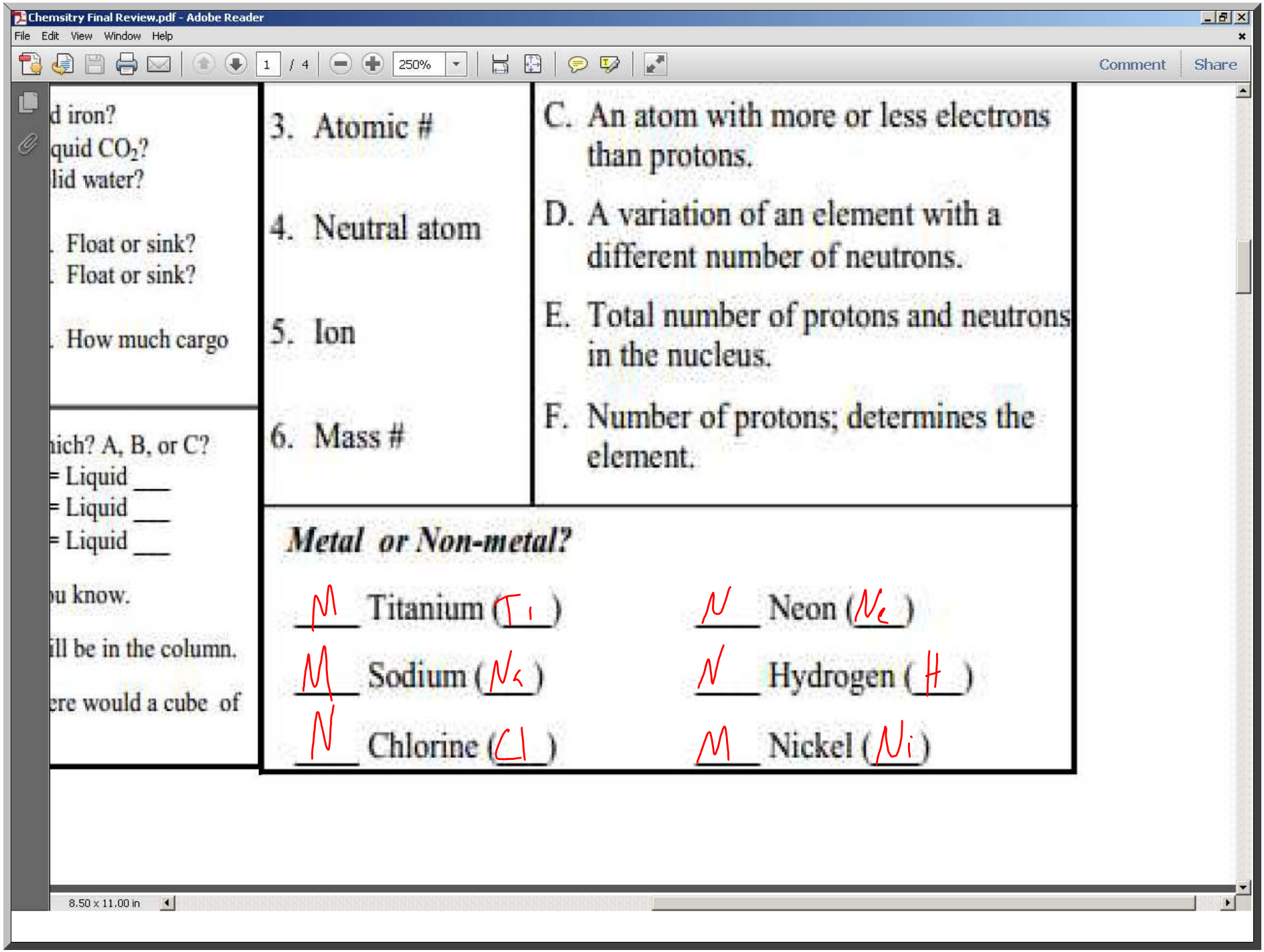
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d iron?
quid CO_2?
lid water?
. Float or sink?
. Float or sink?
. How much cargo
hich? A, B, or C?
= Liquid ___
= Liquid ___
= Liquid ___
u know.
ill be in the column.
ere would a cube of
3. Atomic #
4. Neutral atom
5. Ion
6. Mass #
C. An atom with more or less electrons than protons.
D. A variation of an element with a different number of neutrons.
E. Total number of protons and neutrons in the nucleus.
F. Number of protons; determines the element.
Metal or Non-metal?
M Titanium (Ti)
M Sodium (Na)
N Chlorine (Cl)
N Neon (Ne)
N Hydrogen (H)
M Nickel (Ni)
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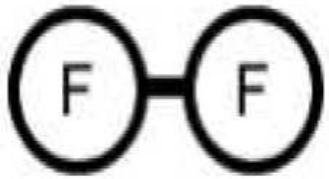
1. Transition Metals D	A. Become positive ions.	8 protons and 10 electrons.
2. Noble Gases E	B. Gain electrons, becoming negative ions	16 protons and 18 electrons
3. Metals A	C. Compounds formed when electrons are shared.	20 protons and electrons.
4. Nonmetals B	D. Do not have consistent oxidation numbers.	*Give the element abbreviat*
5. Ionic F	E. Do not combine into compounds.	16 protons and 18 electrons
6. Covalent C	F. Compounds formed between positively and negatively charged atoms.	35 protons and 36 electrons
		Nitrogen with 10 electrons.

Give the symbol and atomic number of these elements.

Oxygen (O) 8 . Boron (___) _____



For all of the abo

Atoms: _____

Elements: _____

Molecules: _____

Compounds: _____

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ns.

oming negative ions

when electrons are

ent oxidation

o compounds.

between positively
ged atoms.

ese elements.

_____)_____

8 protons and 10 electrons. *Neutral atom or ion?* -2

16 protons and 18 electrons. *Neutral atom or ion?* -2

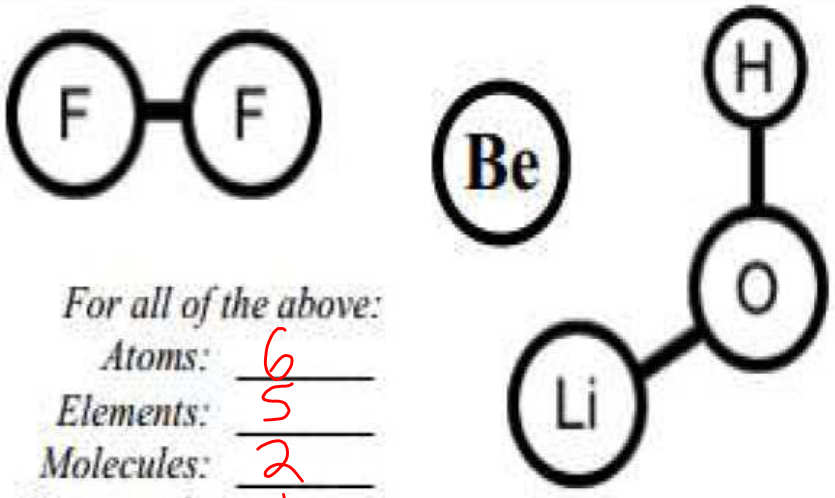
20 protons and 20 electrons. *Neutral atom or ion?*

Give the element abbreviation and charge.

16 protons and 18 electrons: Element: S Charge: -2.

35 protons and 36 electrons: Element: Br Charge: -1.

Nitrogen with 10 electrons. Charge: -3.



For all of the above:

Atoms: 6

Elements: 5

Molecules: 2

Compounds: 1

How many valence elect

Helium (____) _____

Calcium (____) _____

Sulfur (____) _____

Calcium and _____

Oxygen and _____

Helium and _____

1. Bohr
2. Dalton
3. Democritus
4. Rutherford
5. Thompson

A. Di
B. Re of
C. Di orb
D. Di
E. Th

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electrons. *Neutral atom or ion?*

electrons. *Neutral atom or ion?*

ectrons. *Neutral atom or ion?*

abbreviation and charge.

electrons: Element: ___ Charge: _____.

electrons: Element: ___ Charge: _____.

electrons. Charge: _____.

F Be H O Li

f the above:

_____

_____

_____

_____

ith this

How many valence electrons?

Helium (He) 2 Lithium (Li) 1

Calcium (Ca) 2 Aluminum (Al) 3

Sulfur (S) 6 Nitrogen (N) 5

Calcium and Mg have the same reactivity.

Oxygen and S have the same reactivity.

Helium and Ne have the same reactivity.

1.	Bohr C	A.	Discovered that atoms have a nucleus.
2.	Dalton E	B.	Realized that there was a smallest part of matter.
3.	Democritus B	C.	Discovered that electrons are in distinc orbits.
4.	Rutherford A	D.	Discovered the electron.
5.	Thompson D	E.	Theorized that atoms cannot be changed chemically.

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Give the symbol and atomic number of these elements.

Oxygen (O) 8

Nitrogen (N) 7

Helium (He) 2

Sodium (Na) 11

Boron (B) 5

Bromine (Br) 35

Iron (Fe) 26

Mercury (Hg) 80

Give the symbol and number of protons for these elements.

Aluminum (Al) 13

Phosphorus (P) 15

Argon (Ar) 18

Copper (Cu) 29

Lithium (Li) 3

Magnesium Mg 12

Silver (Ag) 47

Gold (Au) 79

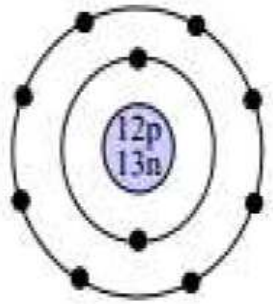
Atoms:

Elements:

Molecules:

Compounds:

What is wrong with this picture of an atom?



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these elements.

__) _____

(__) _____

) _____

(__) _____

for these elements.

(__) _____

ım _____

__) _____

) _____

Atoms: _____

Elements: _____

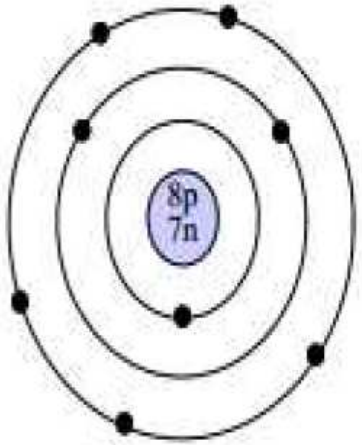
Molecules: _____

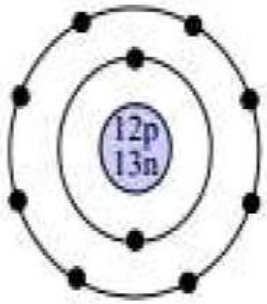
Compounds: _____

Li

What is wrong with this picture of an atom?

The inner shell is not full





Element: Magnesium

# of neutrons: 13

Mass #: 25

# of electrons: 10

# of valence electrons: 8

It is an ion? Yes

3. Democritus

4. Rutherford

5. Thompson

C. D

D. I

E. T

"Atoms are solid." Resp response.

Are these different ele

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_____

_____

_____

_____

Li

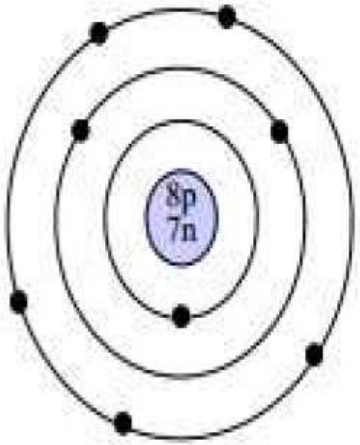
3. Democritus
4. Rutherford
5. Thompson

C. Discovered that electrons are in distinc orbits.

D. Discovered the electron.

E. Theorized that atoms cannot be changed chemically.

ith this
n?



Element: _____

# of neutrons: _____

Mass #: _____

# of electrons: _____

# of valence electrons: _____

It is an ion? _____

"Atoms are solid." Respond and give reasons for your response.

No- atoms are made up of mostly Empty space

gold foil Experiment

Are these different elements?

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Copper (___) _____ Gold (___) _____

How many Aluminums in Al_2O_3? 2

How many Magnesiums in $MgCl_2$? 1

How many Sodiums in Na_3N? 3

How many Oxygens in $Li(NO_3)$? 3

How many electrons are gained or lost?

K^{1+} Lost 1 Fe^{2+} L 2

B^{3+} L 3 F^{1-} G 1

S^{2-} G 2 N^{3-} G 3

He^{0} 0 Si^{4+} either 4

Draw the Lewis Dot Diagrams for the following

1. Oxidation #s
2. Octet Rule
3. Diatomic Molecule
4. Electrolyte
5. Valence Electrons

A. Tell with

B. A m elen

C. Wh that

D. Hov lost.

E. Out

Give symbols and number

Aluminum (Al) 13

Neon (___) _____

Chlorine (___) _____

Boron (___) _____

Give these elements with o

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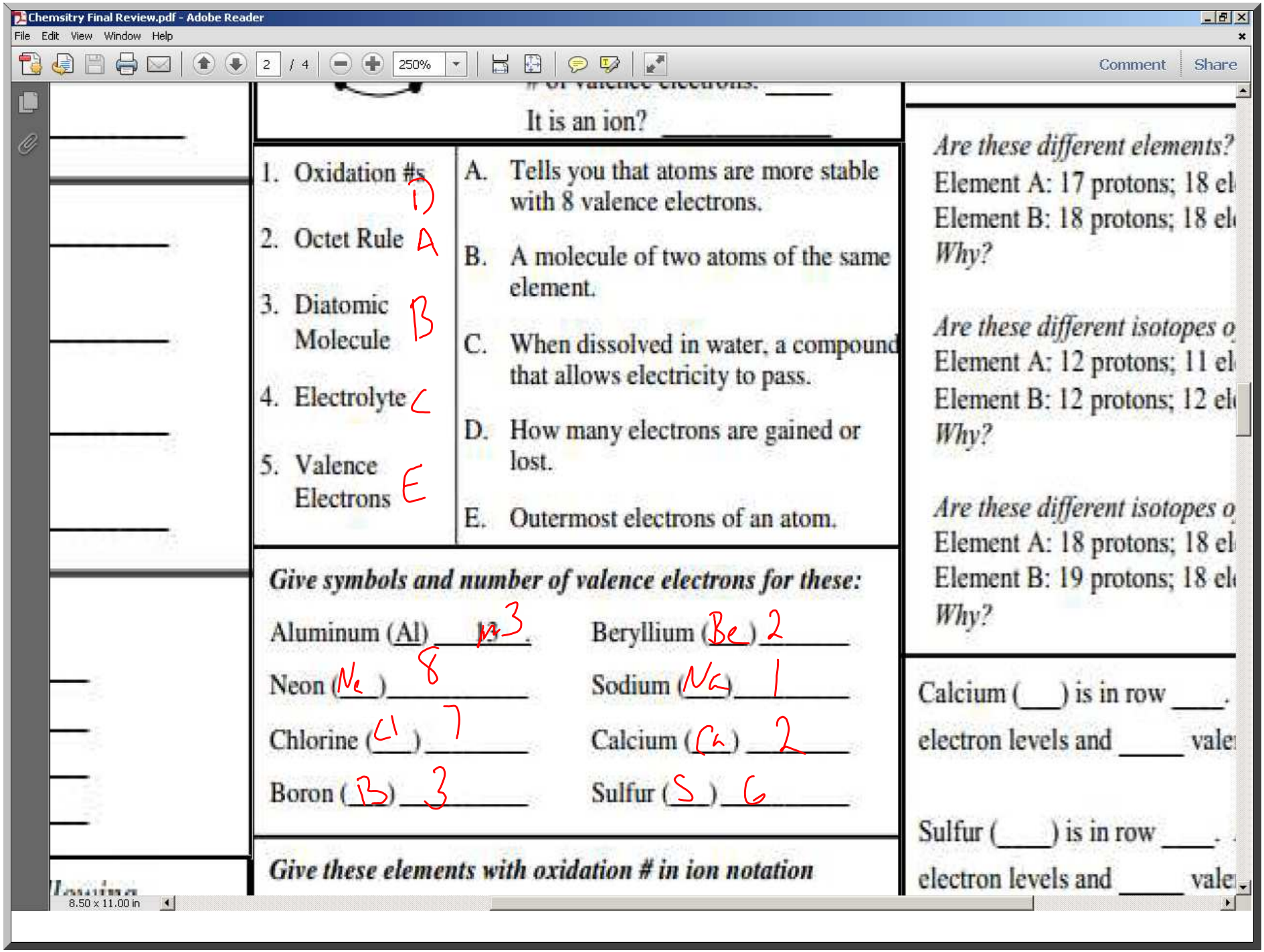
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It is an ion? ____
1. Oxidation #s D
2. Octet Rule A
3. Diatomic Molecule B
4. Electrolyte C
5. Valence Electrons E
A. Tells you that atoms are more stable with 8 valence electrons.
B. A molecule of two atoms of the same element.
C. When dissolved in water, a compound that allows electricity to pass.
D. How many electrons are gained or lost.
E. Outermost electrons of an atom.
Give symbols and number of valence electrons for these:
Aluminum (Al) 3
Beryllium (Be) 2
Neon (Ne) 8
Sodium (Na) 1
Chlorine (Cl) 7
Calcium (Ca) 2
Boron (B) 3
Sulfur (S) 6
Give these elements with oxidation # in ion notation
Are these different elements?
Element A: 17 protons; 18 el
Element B: 18 protons; 18 el
Why?
Are these different isotopes o
Element A: 12 protons; 11 el
Element B: 12 protons; 12 el
Why?
Are these different isotopes o
Element A: 18 protons; 18 el
Element B: 19 protons; 18 el
Why?
Calcium (___) is in row ____.
electron levels and _____ vale
Sulfur (____) is in row ____.
electron levels and _____ vale
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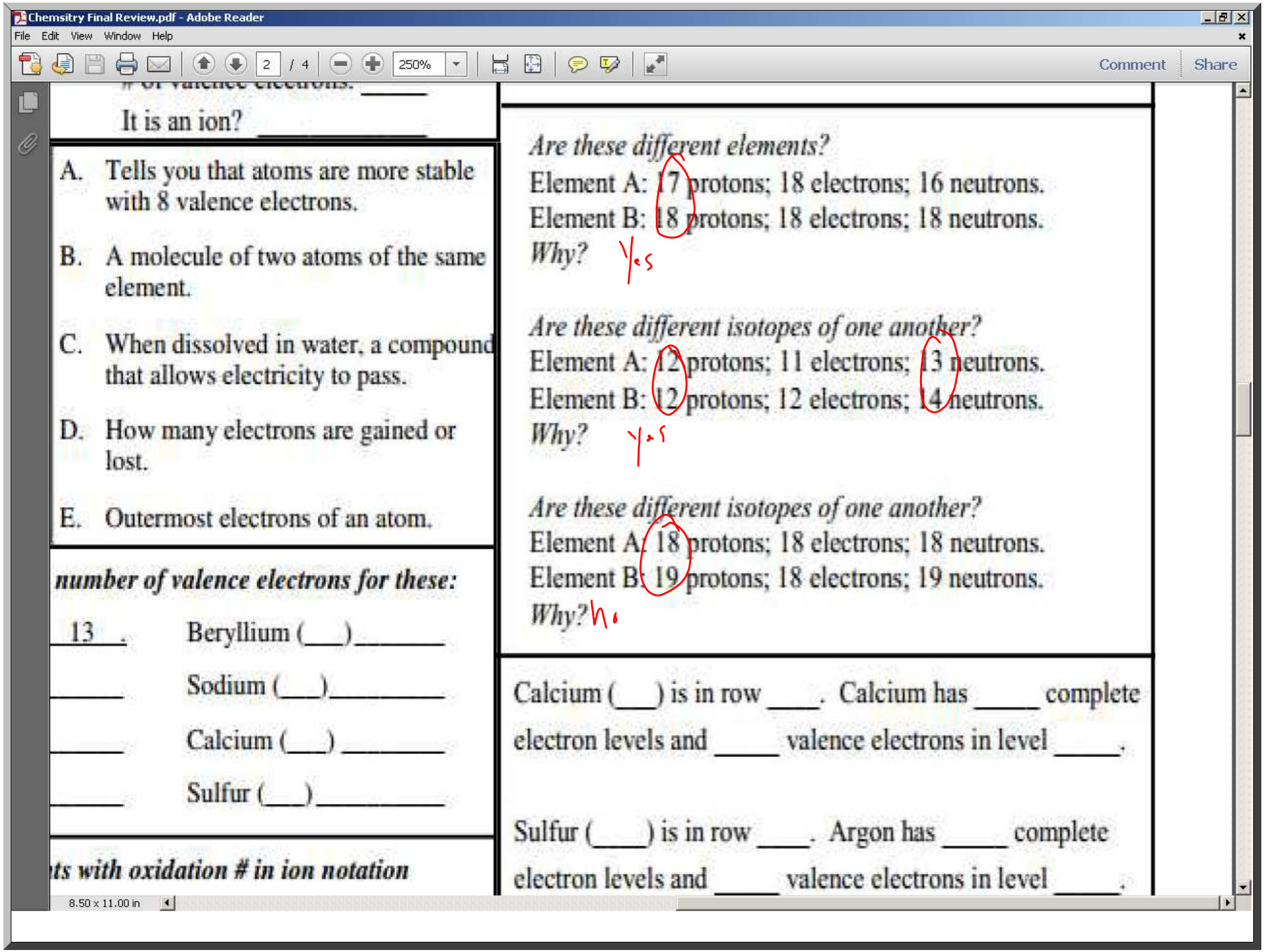
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It is an ion?
A. Tells you that atoms are more stable with 8 valence electrons.
B. A molecule of two atoms of the same element.
C. When dissolved in water, a compound that allows electricity to pass.
D. How many electrons are gained or lost.
E. Outermost electrons of an atom.
number of valence electrons for these:
13 . Beryllium (___)_____
_____ Sodium (___)_____
_____ Calcium (___) _____
_____ Sulfur (___)_____
ts with oxidation # in ion notation
Are these different elements?
Element A: 17 protons; 18 electrons; 16 neutrons.
Element B: 18 protons; 18 electrons; 18 neutrons.
Why?
Are these different isotopes of one another?
Element A: 12 protons; 11 electrons; 13 neutrons.
Element B: 12 protons; 12 electrons; 14 neutrons.
Why?
Are these different isotopes of one another?
Element A: 18 protons; 18 electrons; 18 neutrons.
Element B: 19 protons; 18 electrons; 19 neutrons.
Why?
Calcium (___) is in row ____. Calcium has _____ complete electron levels and _____ valence electrons in level _____.
Sulfur (____) is in row ____. Argon has _____ complete electron levels and _____ valence electrons in level _____.
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He _____ Si _____

Draw the Lewis Dot Diagrams for the following.

Carbon	Lithium	Sulfur	Argon
			
Aluminum	**Nitrogen**	**Magnesium**	**Chlorine**
			

Give these elements with o:

Oxygen O^{2-}

Nitrogen _____

Helium _____

Carbon _____

How many total atoms in A

How many total atoms in M

How many total atoms in N

How many total atoms in L

How many electrons will b

K *Lost 1*

Al _____

O _____

Be _____

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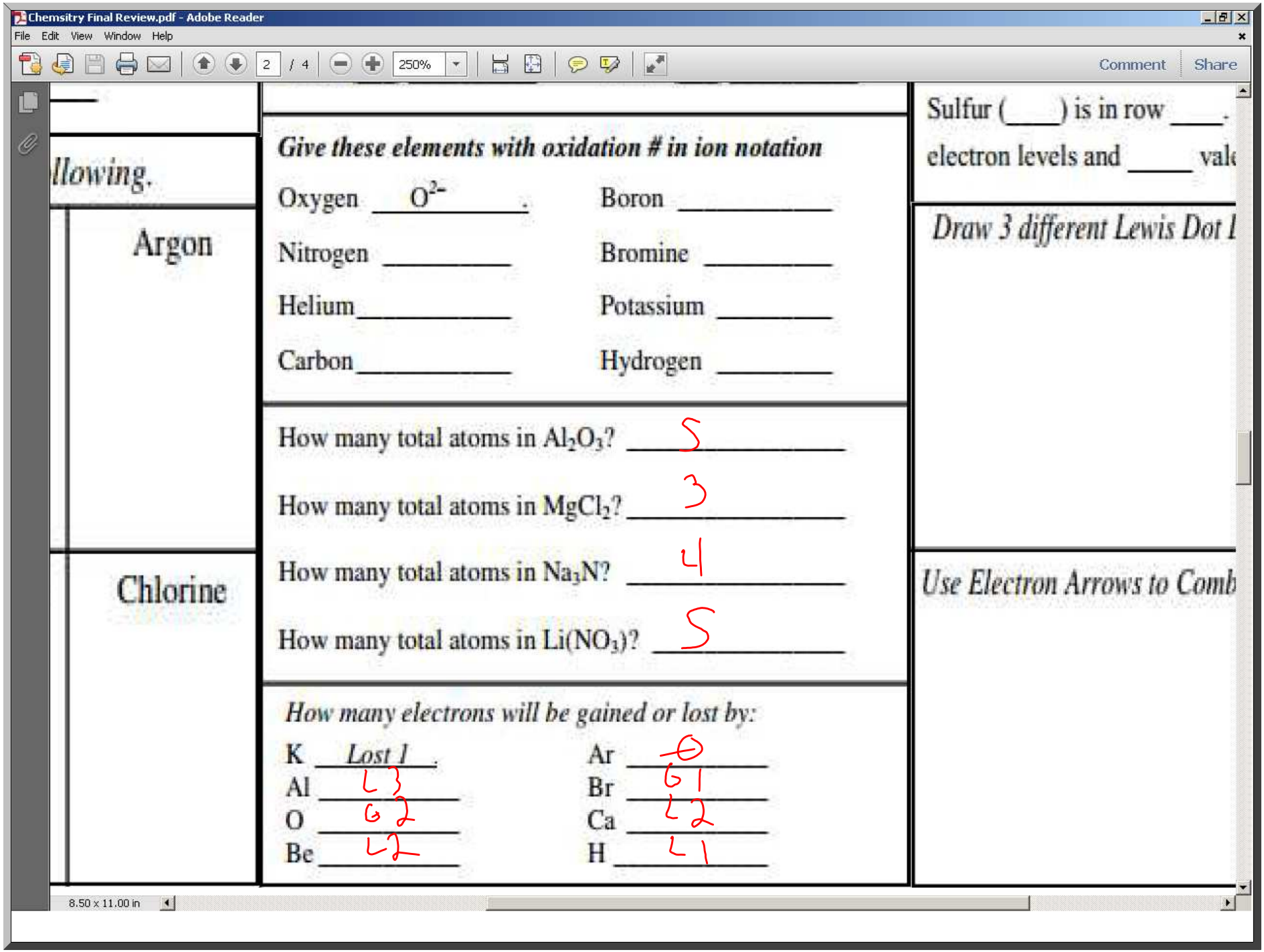
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llowing.
Argon
Chlorine
Give these elements with oxidation # in ion notation
Oxygen O^{2-}
Boron
Nitrogen
Bromine
Helium
Potassium
Carbon
Hydrogen
How many total atoms in Al_2O_3? 5
How many total atoms in $MgCl_2$? 3
How many total atoms in Na_3N? 4
How many total atoms in $Li(NO_3)$? 5
How many electrons will be gained or lost by:
K Lost 1
Al L3
O G2
Be L2
Ar 0
Br G1
Ca L2
H L1
Sulfur (____) is in row ____.
electron levels and _____ val
Draw 3 different Lewis Dot I
Use Electron Arrows to Comb
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ts with oxidation # in ion notation

_____. Boron _____

____ Bromine _____

____ Potassium _____

____ Hydrogen _____

toms in Al_2O_3? _____

toms in $MgCl_2$? _____

toms in Na_3N? _____

toms in $Li(NO_3)$? _____

ons will be gained or lost by:

Ar _____

Br _____

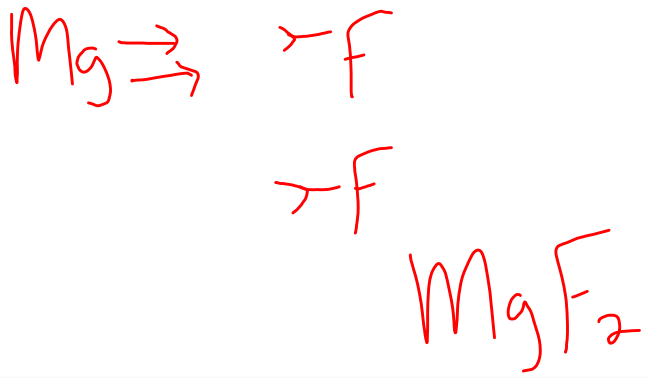
Ca _____

H _____

Sulfur (____) is in row ____. Argon has _____ complete electron levels and _____ valence electrons in level _____.

Draw 3 different Lewis Dot Diagrams for Aluminum.

Use Electron Arrows to Combine Magnesium and Fluorine



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1. Al_2O_3	Ionic	No	Aluminum Oxide
2. O_2F_2	C	Y	
3. BeF_2	I	N	
4. $K_2(CO_3)$	P	N	
5. N_2F_3	C	Y	
6. SF_6	C	Y	
7. $Al_2(CrO_4)_3$	P	N	
8. P_4S_3	C	Y	
9. NaN_3	I	N	
10. MgO	I	N	
11. PF_3	C	Y	
12. CO_2	C	Y	

___ Sodium (___)

___ Fluorine (___)

___ Argon (___)

___ Magnesium (___)

___ Nickel (___)

Give the total charge

Ca_3^{2+}	+6
$Ca^{2+}O^{2-}$	
$Mg^{2+}F^{1-}$	
$Na^{1+}F_2^{1-}$	
$Al^{3+}S_2^{2-}$	
$Al^{3+}O_2^{2-}$	
O_3^{2-}	
$Mg^{2+}(NO_3)^{1-}$	

3.

4.

5.

6.

A. L

B. H

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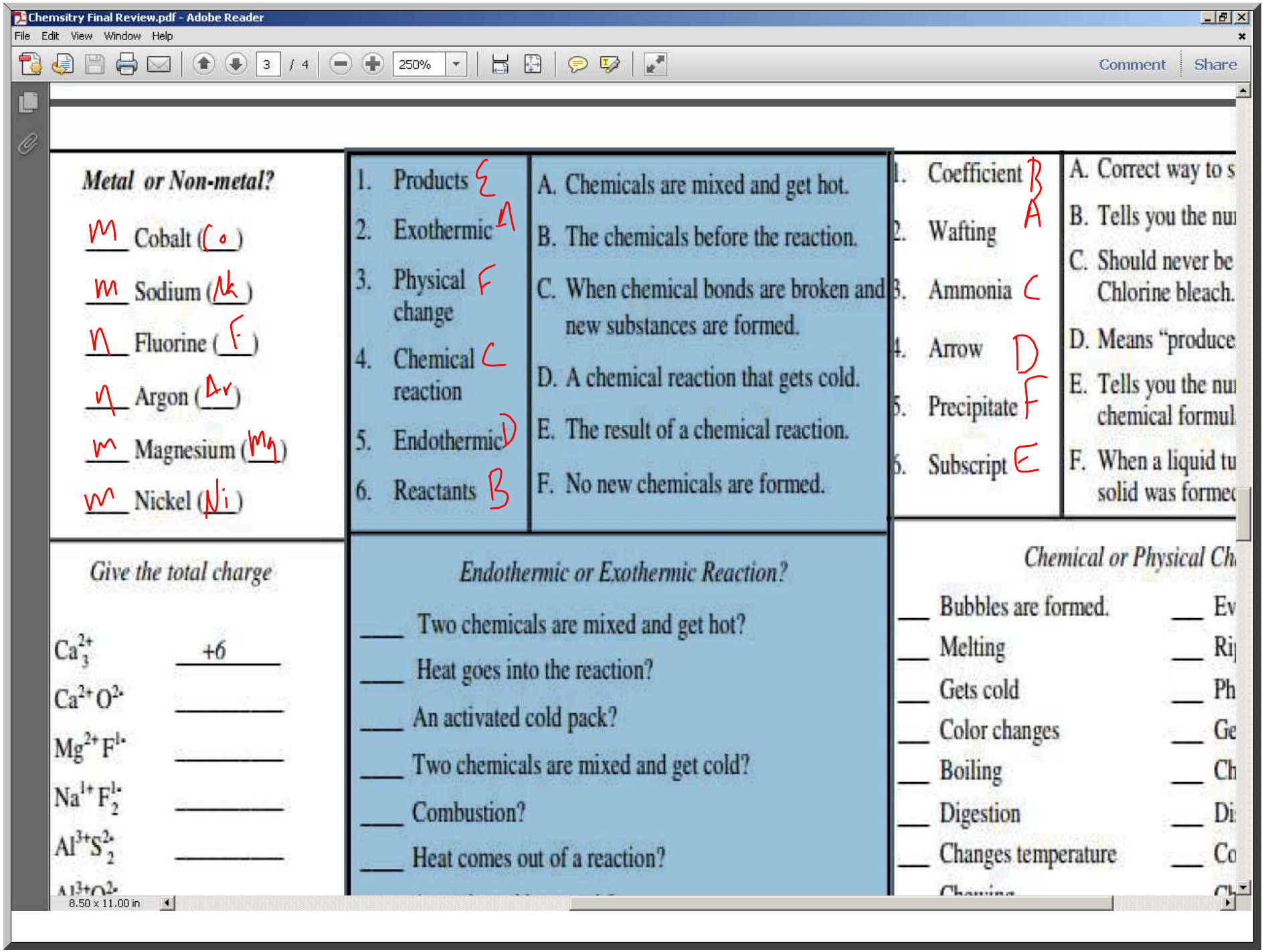
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Metal or Non-metal?
M Cobalt (Co)
M Sodium (Na)
N Fluorine (F)
N Argon (Ar)
M Magnesium (Mg)
M Nickel (Ni)
1. Products E
2. Exothermic A
3. Physical change F
4. Chemical reaction C
5. Endothermic D
6. Reactants B
A. Chemicals are mixed and get hot.
B. The chemicals before the reaction.
C. When chemical bonds are broken and new substances are formed.
D. A chemical reaction that gets cold.
E. The result of a chemical reaction.
F. No new chemicals are formed.
1. Coefficient B
2. Wafting A
3. Ammonia C
4. Arrow D
5. Precipitate F
6. Subscript E
A. Correct way to s
B. Tells you the nu
C. Should never be Chlorine bleach.
D. Means "produce
E. Tells you the nu chemical formul
F. When a liquid tu solid was formed
Give the total charge
Ca3 2+ +6
Ca2+ O2- ____
Mg2+ F1- ____
Na1+ F2 1- ____
Al3+ S2 2- ____
Endothermic or Exothermic Reaction?
___ Two chemicals are mixed and get hot?
___ Heat goes into the reaction?
___ An activated cold pack?
___ Two chemicals are mixed and get cold?
___ Combustion?
___ Heat comes out of a reaction?
Chemical or Physical Ch
___ Bubbles are formed.
___ Melting
___ Gets cold
___ Color changes
___ Boiling
___ Digestion
___ Changes temperature
___ Ev
___ Ri
___ Ph
___ Ge
___ Ch
___ Di
___ Co
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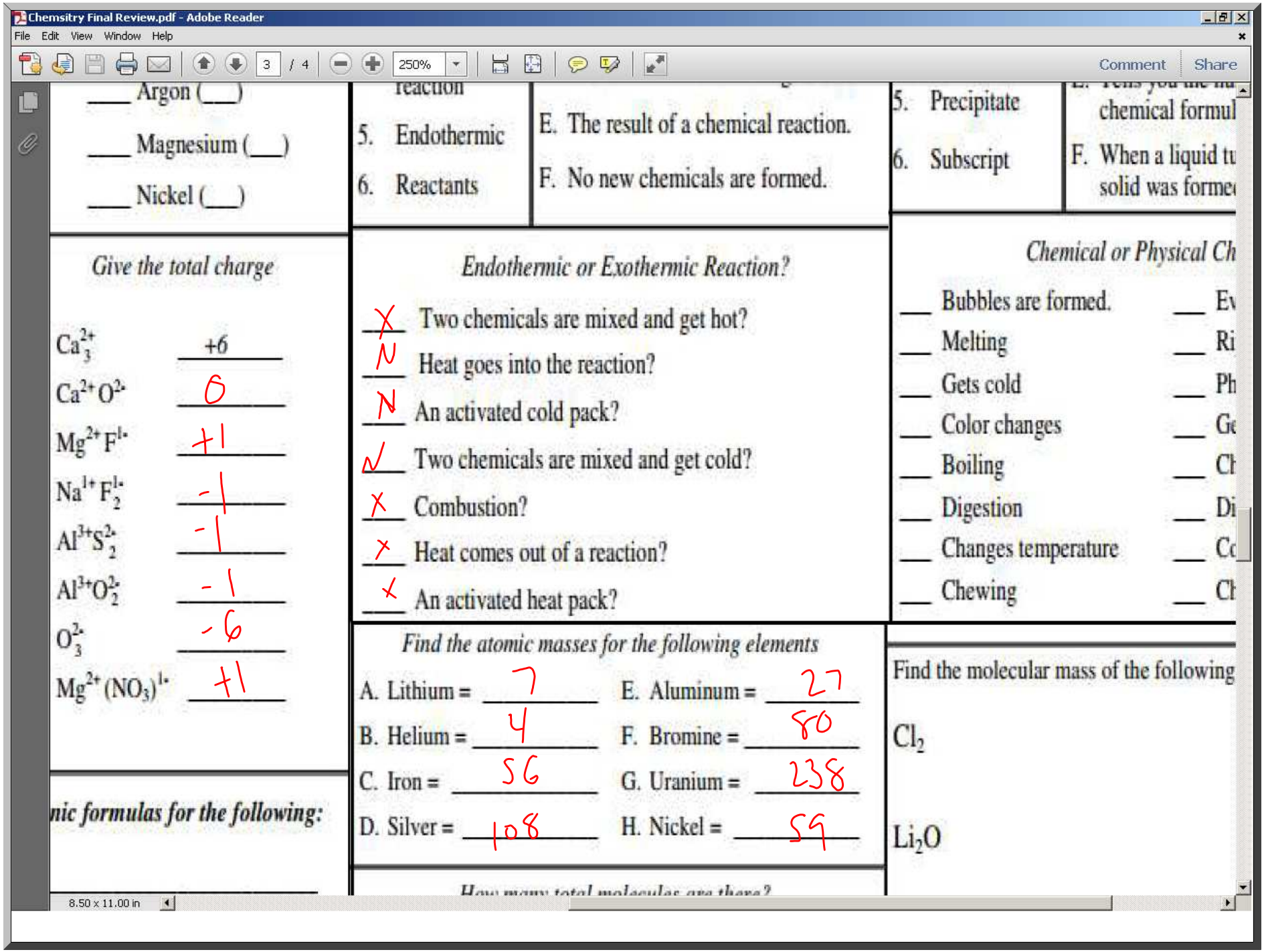
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___ Argon (___)
___ Magnesium (___)
___ Nickel (___)
reaction
5. Endothermic
6. Reactants
E. The result of a chemical reaction.
F. No new chemicals are formed.
5. Precipitate
6. Subscript
chemical formul
F. When a liquid tu
solid was forme
Give the total charge
Ca_3^{2+} +6
$Ca^{2+}O^{2-}$ 0
$Mg^{2+}F^{1-}$ +1
$Na^{1+}F_2^{1-}$ -1
$Al^{3+}S_2^{2-}$ -1
$Al^{3+}O_2^{2-}$ -1
O_3^{2-} -6
$Mg^{2+}(NO_3)^{1-}$ +1
nic formulas for the following:
Endothermic or Exothermic Reaction?
X Two chemicals are mixed and get hot?
N Heat goes into the reaction?
N An activated cold pack?
Y Two chemicals are mixed and get cold?
X Combustion?
X Heat comes out of a reaction?
X An activated heat pack?
Chemical or Physical Ch
___ Bubbles are formed.
___ Melting
___ Gets cold
___ Color changes
___ Boiling
___ Digestion
___ Changes temperature
___ Chewing
___ Ev
___ Ri
___ Ph
___ Ge
___ Ch
___ Di
___ Cc
___ Ch
Find the atomic masses for the following elements
A. Lithium = 7
B. Helium = 4
C. Iron = 56
D. Silver = 108
E. Aluminum = 27
F. Bromine = 80
G. Uranium = 238
H. Nickel = 59
Find the molecular mass of the following
Cl_2
Li_2O
How many total molecules are there?
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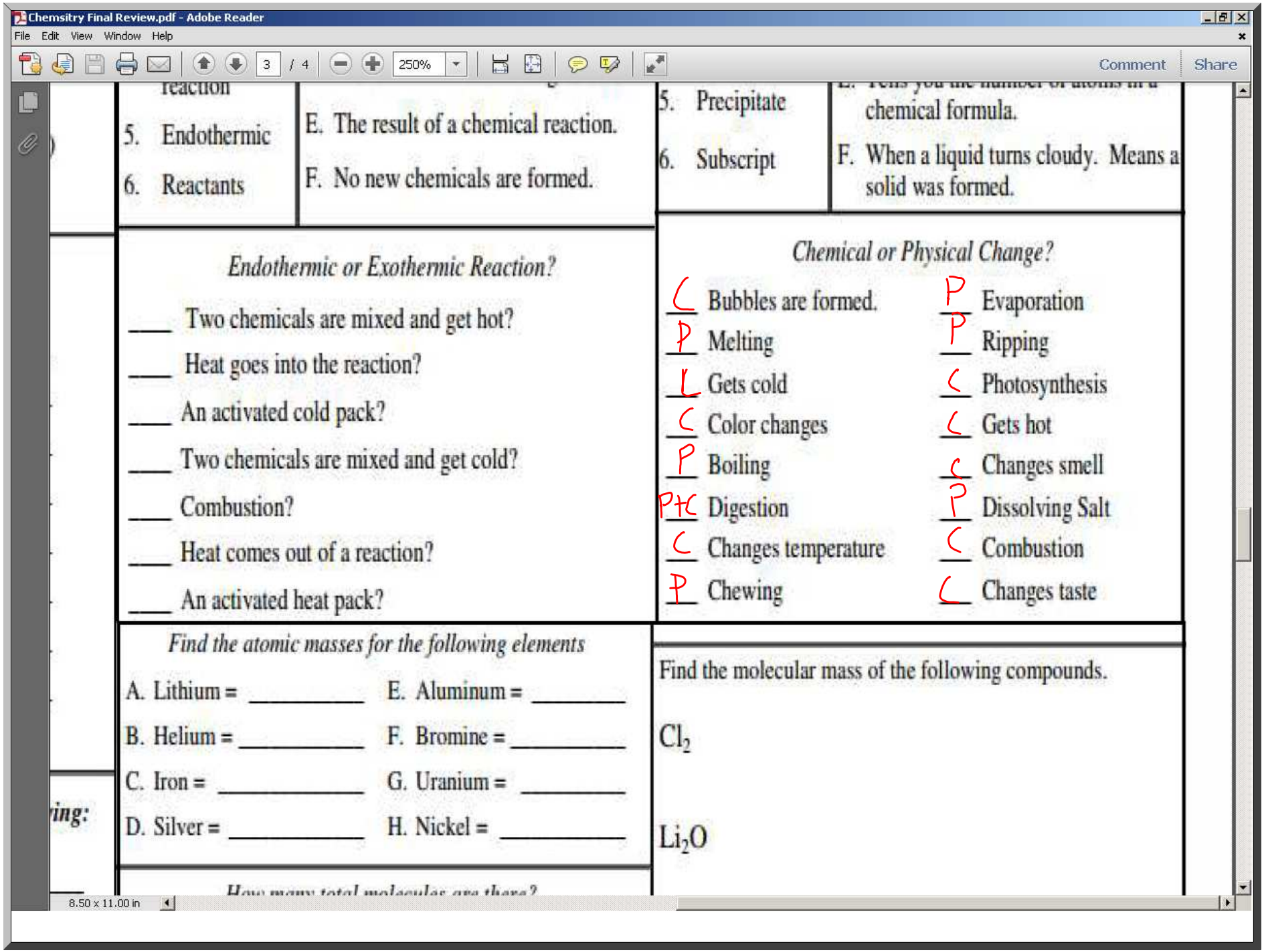
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reaction
5. Endothermic
6. Reactants
E. The result of a chemical reaction.
F. No new chemicals are formed.
5. Precipitate
6. Subscript
chemical formula.
F. When a liquid turns cloudy. Means a solid was formed.
Endothermic or Exothermic Reaction?
___ Two chemicals are mixed and get hot?
___ Heat goes into the reaction?
___ An activated cold pack?
___ Two chemicals are mixed and get cold?
___ Combustion?
___ Heat comes out of a reaction?
___ An activated heat pack?
Chemical or Physical Change?
C Bubbles are formed.
P Melting
C Gets cold
C Color changes
P Boiling
P+C Digestion
C Changes temperature
P Chewing
P Evaporation
P Ripping
C Photosynthesis
C Gets hot
C Changes smell
P Dissolving Salt
C Combustion
C Changes taste
Find the atomic masses for the following elements
A. Lithium = _____
B. Helium = _____
C. Iron = _____
D. Silver = _____
E. Aluminum = _____
F. Bromine = _____
G. Uranium = _____
H. Nickel = _____
Find the molecular mass of the following compounds.
Cl_2
Li_2O
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2. CO_2 _____ _____ _____

Write the balanced ionic compounds for the following:

Li^{2+} and O^{2-}: Li_2O K^{1+} and S^{2-}: K_2S

Na^{1+} and N^{3-}: Na_3N Li^{1+} and F^{1-}: LiF

Al^{3+} and O^{1-}: AlO_3 Ca^{2+} and P^{3-}: Ca_3P_2

Mg^{2+} and Cl^{1-}: $MgCl_2$ Al^{3+} and $(NO_3)^{1-}$: $Al(NO_3)_3$

Write the balanced ionic formulas for the following:

Li and Cl: $LiCl$

Mg and O: MgO

Al and S: Al_2S_3

Mg and N: Mg_3N_2

K and (CrO_4) $K_2(CrO_4)$

Draw the Lewis Dot Diagram for molecular Fluorine (F_2).

Short hand

—C—

# of electrons: ____

N≡

# of electrons: ____

Using shorthand, make Oxygen Dichloride

Type of Reaction

Balance these reactions:

B. He

C. Iro

D. Sil

Produc

Reactar

The arr

Circle t

Name t

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Find the atomic masses for the following elements

A. Lithium = _____ E. Aluminum = _____

B. Helium = _____ F. Bromine = _____

C. Iron = _____ G. Uranium = _____

D. Silver = _____ H. Nickel = _____

How many total molecules are there?

2	$2H_2O$	2	$2Be_3N_2$	3	$3C_2F_4$
5	$5Na_2S$	41	$4Br_2$	2	$2K(OH)$

How many total atoms are there?

6	$2H_2O$	10	$2Be_3N_2$	18	$3C_2F_4$
15	$5Na_2S$	8	$4Br_2$	6	$2K(OH)$

Products are on the r side of a chemical reaction.

Reactants are on the L side of a chemical reaction.

The arrow points to the Products.

$C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O + energy$

Circle the first reactant: _____

Find the molecular mass of the following compounds.

Cl_2 70amu

Li_2O 30amu

$Na(NO_3)$ 85amu

Open or closed reaction?

Will the mass of his products be greater than, less than, or equal to his reactants?

Why?

What does this set up allow us to prove?

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How many total atoms are there?

____ $2H_2O$	____ $2Be_3N_2$	____ $3C_2F_4$
____ $5Na_2S$	____ $4Br_2$	____ $2K(OH)$

Products are on the _____ side of a chemical reaction.

Reactants are on the _____ side of a chemical reaction.

The arrow points to the _____.

$C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O + \text{energy}$

Circle the first reactant: _____

Name the first product: Carbon Monoxide

How many hydrogen atoms on the product side? 12

How many oxygen atoms on the reactant side? 18

Is this respiration or photosynthesis? respiration

What kind of reaction is it? combustion

Endothermic or exothermic? exo

Write the following reaction, being sure to use the correct

Open or closed reaction? closed

Will the mass of his products be greater than, less than, or equal to his reactants? no

Why? the products are sealed in

What does this set up allow us to prove? Law of conservation of mass

1. Molecular Mass	A. When the reactants equal the products.
2. Closed System	B. When the reaction is closed and gases can't escape.
3. The Law of Conservation of Mass	C. How heavy a compound or molecule is.
4. Open System	D. When gases aren't caught by the experimental setup.
5. Atomic Mass	E. In a closed reaction mass cannot be lost.
6. Balanced	F. The decimal numbers on the periodic

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Al^{3+} and O^{1-}: _____ Ca^{2+} and P^{3-}: _____

Mg^{2+} and Cl^{1-}: _____ Al^{3+} and $(NO_3)^{1-}$: _____

Mg and N: _____

K and (CrO_4) _____

Draw the Lewis Dot Diagram for molecular Fluorine (F_2).

Short hand

F - F

—C—

# of electrons: 6

N≡

# of electrons: 8

Using shorthand, make Oxygen Dichloride

O—Cl
|
Cl

Type of Reaction

_____

Balance these reactions:

___ K_3N + ___ $Ca(CrO_4)$ → ___ Ca_3N_2 + ___ $K_2(CrO_4)$

Product
Reactan
The arr
C
Circle tl
Name th
How ma
How ma
Is this r
What ki
Endothe

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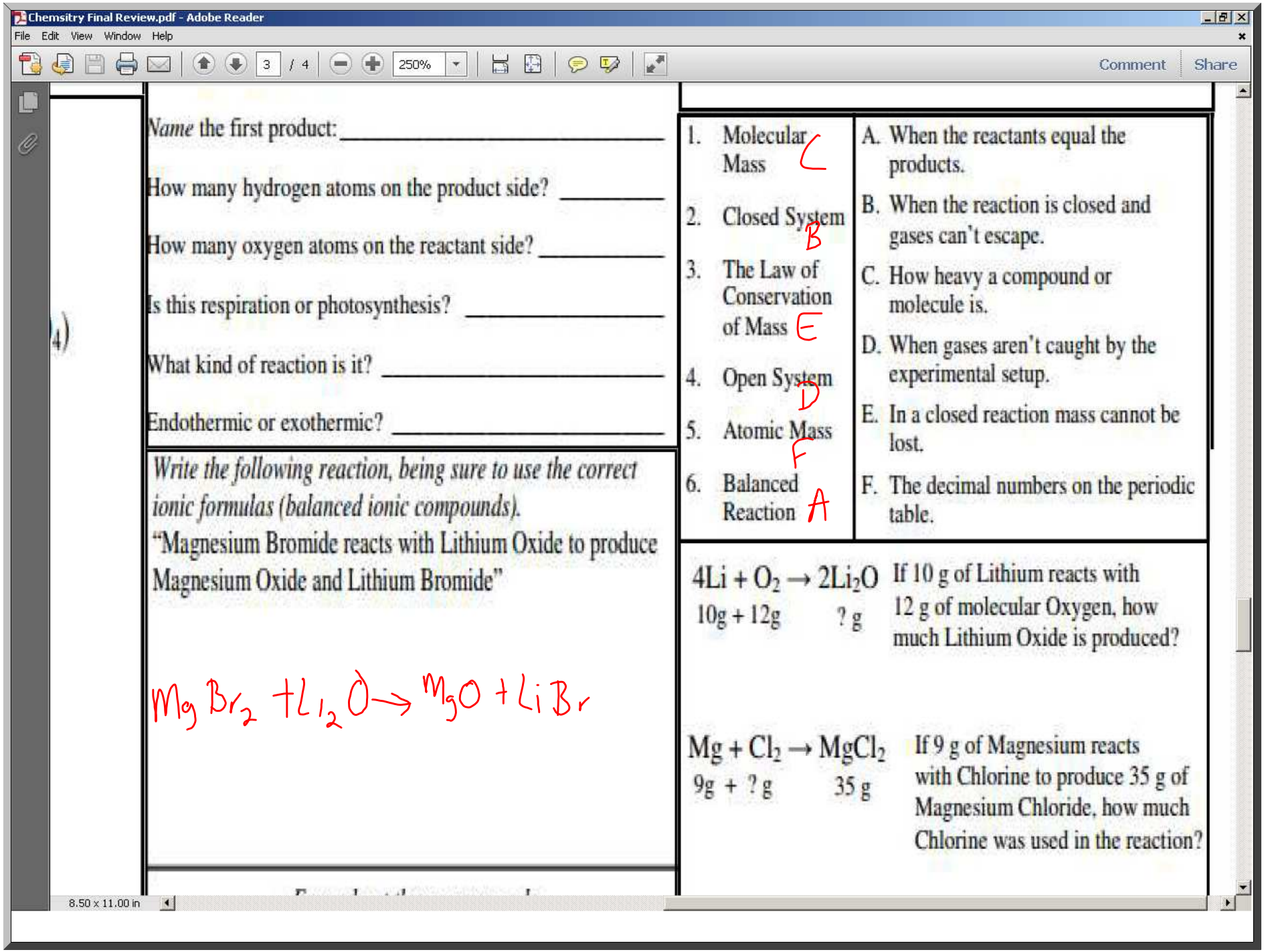
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Name the first product: _____
How many hydrogen atoms on the product side? _____
How many oxygen atoms on the reactant side? _____
Is this respiration or photosynthesis? _____
What kind of reaction is it? _____
Endothermic or exothermic? _____
Write the following reaction, being sure to use the correct ionic formulas (balanced ionic compounds).
"Magnesium Bromide reacts with Lithium Oxide to produce Magnesium Oxide and Lithium Bromide"
$MgBr_2 + Li_2O \rightarrow MgO + LiBr$
1. Molecular Mass C
2. Closed System B
3. The Law of Conservation of Mass E
4. Open System D
5. Atomic Mass F
6. Balanced Reaction A
A. When the reactants equal the products.
B. When the reaction is closed and gases can't escape.
C. How heavy a compound or molecule is.
D. When gases aren't caught by the experimental setup.
E. In a closed reaction mass cannot be lost.
F. The decimal numbers on the periodic table.
$4Li + O_2 \rightarrow 2Li_2O$
10g + 12g ? g
If 10 g of Lithium reacts with 12 g of molecular Oxygen, how much Lithium Oxide is produced?
$Mg + Cl_2 \rightarrow MgCl_2$
9g + ? g 35 g
If 9 g of Magnesium reacts with Chlorine to produce 35 g of Magnesium Chloride, how much Chlorine was used in the reaction?
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Magnesium Bromide reacts with Lithium Oxide to produce Magnesium Oxide and Lithium Bromide"

Expand out these compounds.

$3NaCl =$ NaCl + NaCl + NaCl

$4MgO =$ MgO + MgO + MgO + MgO

$(OH)_2 =$ OH + OH

Write the following in reaction notation.

$2BeCl_2 =$ Be_2Cl_4 $Li_2O =$ $L_{i_2}O$

$4Na =$ Na_4 $6K_2S =$ $K_{12}S_6$

$3Al_2O_3 =$ Al_6O_9 $7H_2O =$ $H_{14}O_7$

$4Li + O_2 \rightarrow 2Li_2O$
$10g + 12g \quad ?\,g$

If 10 g of Lithium reacts with 12 g of molecular Oxygen, how much Lithium Oxide is produced?

22g

$Mg + Cl_2 \rightarrow MgCl_2$
$9g + ?\,g \quad 35\,g$

If 9 g of Magnesium reacts with Chlorine to produce 35 g of Magnesium Chloride, how much Chlorine was used in the reaction?

26g

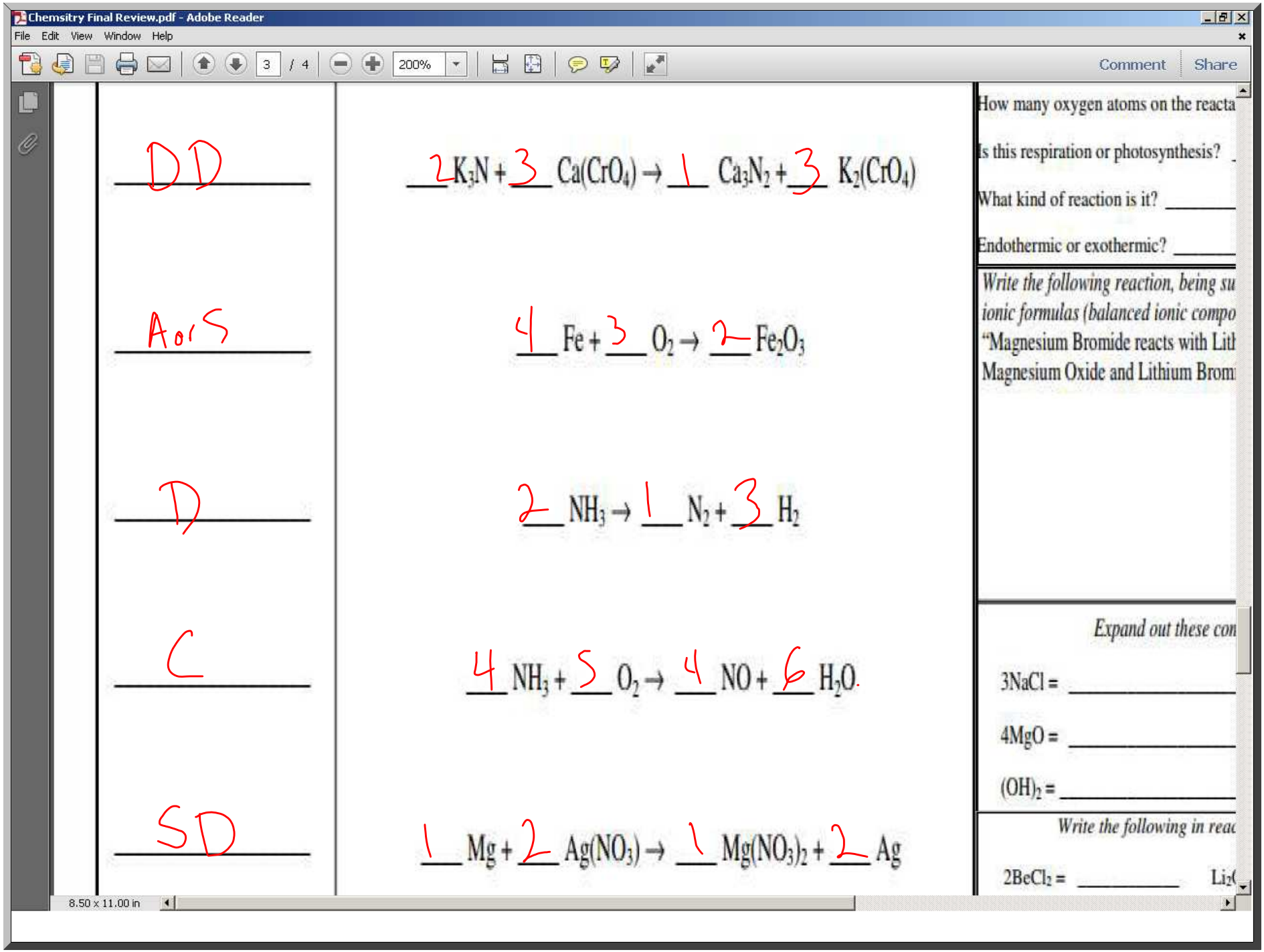
$2NaF + K_2O \rightarrow Na_2O + 2KF$
$8g + 9g \quad ?\,g \quad 11\,g$

Using the numbers given, find how much Na_2O was produced in the reaction.

6g

Why do we balance chemical reactions?

To Prove Law of Conservation of Mass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DD
2 K3N + 3 Ca(CrO4) → 1 Ca3N2 + 3 K2(CrO4)
A or S
4 Fe + 3 O2 → 2 Fe2O3
D
2 NH3 → 1 N2 + 3 H2
C
4 NH3 + 5 O2 → 4 NO + 6 H2O
SD
1 Mg + 2 Ag(NO3) → 1 Mg(NO3)2 + 2 Ag
How many oxygen atoms on the reacta
Is this respiration or photosynthesis?
What kind of reaction is it?
Endothermic or exothermic?
Write the following reaction, being su
ionic formulas (balanced ionic compo
"Magnesium Bromide reacts with Lit
Magnesium Oxide and Lithium Brom
Expand out these con
3NaCl =
4MgO =
(OH)2 =
Write the following in reac
2BeCl2 =
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