

TEST ON GAS LAWS WED 11/6/13

SIG FIGS - RULE OF THUMB

ex: $(25.35)(22) = 557.7$

558

multiply and divide

SCIENTIFIC NOTATION

$$(6 \times 10^3)(1 \times 10^4) = 6 \times 10^{3+4} \\ = 6 \times 10^7$$

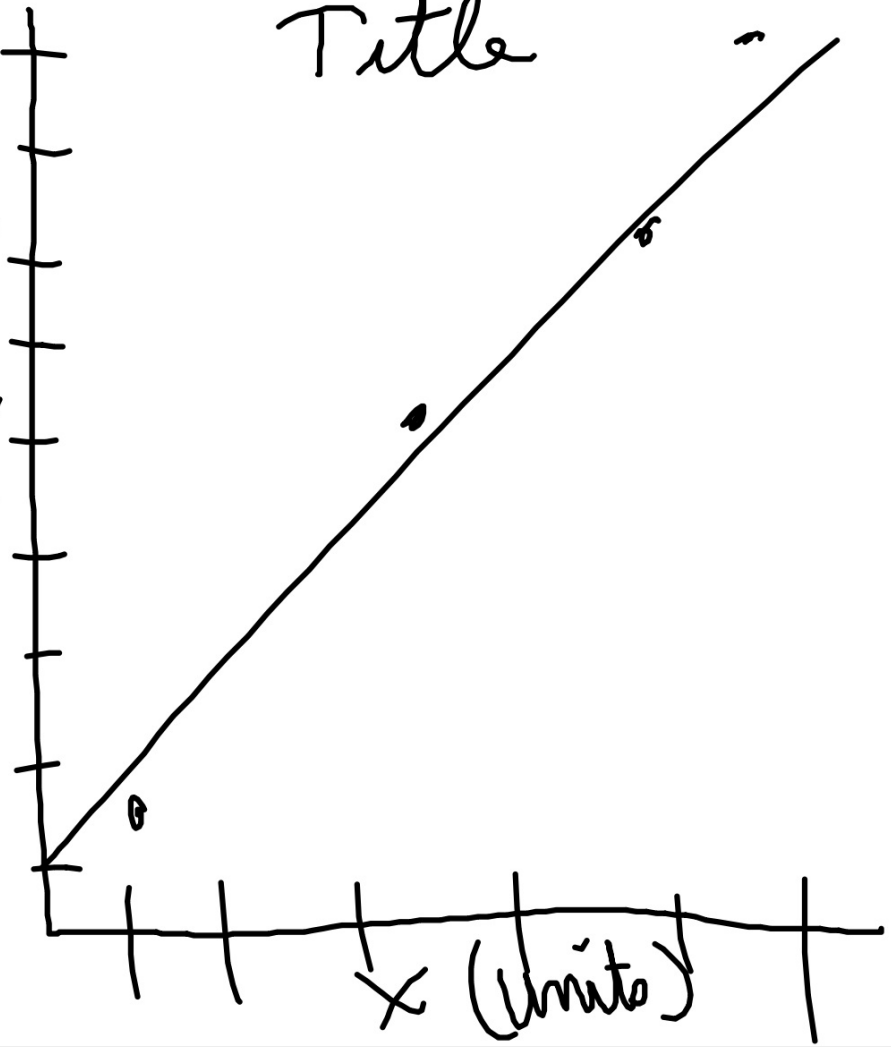
$$\frac{8 \times 10^9}{4 \times 10^4} = 2 \times 10^{9-4} = 2 \times 10^5$$

graph

X	Y
3	2
6	5
12	10
24	19

FILL GRAPH
PAPER

Title



KINETIC MOLECULAR THEORY

- tiny PARTICLES - NO VOLUME
NO ATTRACTIVE FORCES
- SPEED (motion) PROPORTIONAL TO TEMP
- COLLISIONS ARE "ELASTIC"

GASES

4 PROPERTIES DESCRIBING GAS

BEHAVIOR: VOLUME
TEMPERATURE
AMOUNT OF GAS
PRESSURE

$$K = ^\circ C + 273$$

PRESSURE AT
SEA LEVEL

$$P = F/A$$

$$30 \text{ in Hg} \approx 760 \text{ mm Hg}$$

$$14.7 \text{ psi} = \underline{1 \text{ atmosphere (ATM)}}$$

$$\frac{\text{mmHg}}{760} = \text{atm} \quad \text{atm} \times 760 = \text{mmHg}$$

BOYLE'S LAW $P \uparrow \quad V \downarrow$ $T \text{ \& } n$
are
constant

$$P_1 V_1 = P_2 V_2$$

CHARLES' LAW $T \uparrow \quad V \uparrow$
 $P \text{ \& } n$ are constant

$$\frac{V_1}{T_1} = \frac{V_2}{T_2}$$

1811 AVOGADRO

AVOGADRO'S Hypothesis

equal VOLUMES OF GASES
AT THE SAME PRESSURE
AND TEMPERATURE CONTAIN
EQUAL MOLECULES

100 mL
 N_2

100 molecules

100 molecules O_2 100 mL

AVOGADRO'S LAW

THE VOLUME OF A GAS AT
CONSTANT TEM