ANSWERS PHYSICS INTRO:

MEASUREMENT: READ 1-1l, 1-2

Sec Review 1-4 Page 19

1) Which SI units would you use for the following measurements?

A) the length of a swimming pool ***meters***

B) the mass of the water in the pool ***kilograms***

C) the time it takes a swimmer to swim a lap ***seconds***

2) Convert the following measurements as indicated.

A) 6.20 mg to kg ***6.2mg is 6 places from kg so 0.0000062 kg***

OR: Factor Label Method:

$$6.2\text{mg} * \frac{1\text{ g}}{1000\text{ mg}} * \frac{1\text{kg}}{1000\text{g}} = 6.2 * 10^{-6}\text{ kg}$$

B) $3 * 10^{-9}$ sec to ms

$$3 * 10^{-9}\text{ sec} * \frac{1000\text{ ms}}{1\text{ sec}} = 3 * 10^{-6}\text{ sec}$$

C) 88.0 km to mm

$$88\text{ km} * \frac{1000\text{m} * 1000\text{mm}}{1\text{ km} \quad 1\text{m}} = 88,000,000\text{ mm} = 8.8 * 10^{7}\text{ mm}$$

3) The following students measure the density of a piece of lead three times. The real density of lead is actually 11.34 g/cm^3. Considering all the results, which person's results were accurate? Which were precise? Were any both accurate and precise?

A) Rachel: 11.32 g/cm^3., 11.35 g/cm^3., 11.33 g/cm^3. ***Accurate AND Precise***

B) Danaiel: 11.43 g/cm^3., 11.44 g/cm^3., 11.42 g/cm^3. ***Precise***

C) Leah: 11.55 g/cm^3., 11.34 g/cm^3., 11.04 g/cm^3. ***Neither***

Math TEST:

ALL:

solve for x: $Y = Gm/x + r$

METHOD 1:

$Y - r = Gm/x + r - r$

$(Y-r) = Gm/x$

$x*(Y-r) = Gm/x * x$

$x(Y-r) = Gm$

$1/(Y-r) * x(Y-r) = Gm * 1/(Y-r)$

$x = Gm/(Y-r)$

METHOD 2:

$Y - r = Gm/x + r - r$

$(Y-r) = Gm/x$

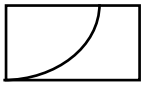
$1/Gm * (Y-r) = Gm/x * 1/Gm$

$(Y-r)/Gm = 1/x$ ***FLIP→***

Gm/ (Y-r)=x

METHOD 3:

x*(Y = Gm/x +r)
x*Y = Gm +rx
x*(Y)-rx = Gm
x*(Y-r) = Gm
1/(Y-r)* x(Y-r) = Gm * 1/(Y-r)
x = Gm/ (Y-r)

the shape of a quadratic relationship ***(E parabola)***	a) y = 1/x
the equation of a linear relationship ***(C line)***	b. straight line
the shape of the graph of a constant increase ***(B line)***	c) y = mx + b
the equation of a quadratic relationship ***(D parabola)***	d. $y = ax^2 + bx + c$
	e) 

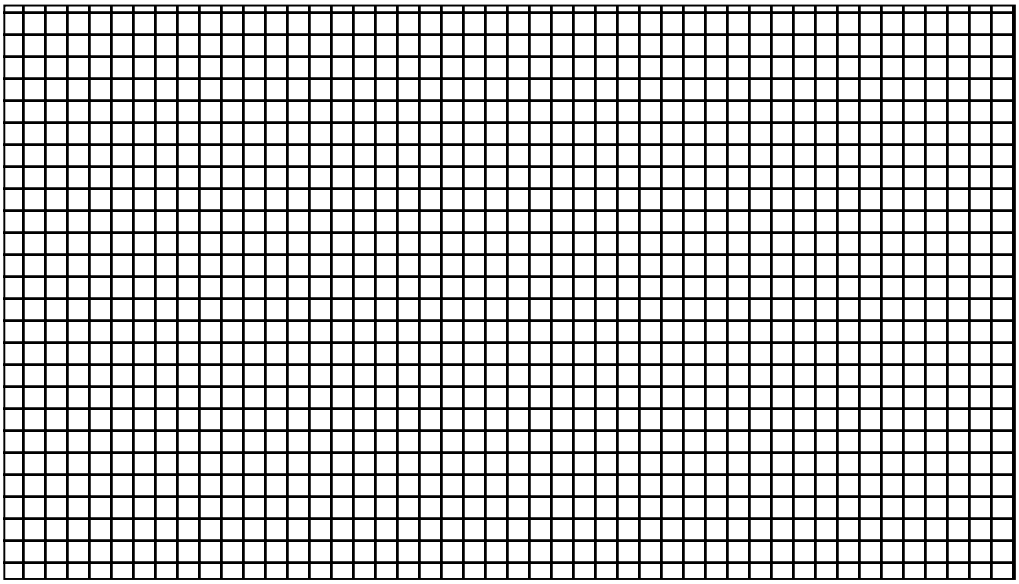
If a is acceleration (m/s^2), v is change in position over time (m/s), x is change in position (m), and t is the time interval (s), which equation is dimensionally correct?

a) $t = x/a$	b) $t = v^2/x$	c) $v = a/t$	d) $t^2 = x/a$
s = m / (m/s^2)	***s = (m/s)^2/m***	***m/s = (m/s^2)/s***	***s^2 = m / (m/s^2)***
s= m* s^2 /m	***s= m^2/s^2/m***	***m/s = (m/s^2)*1/s***	***s^2 = m* s^2/m***
s = s^2 NO	***s= m/s^2 NO***	***m/s = m/s^3 NO***	***s^2 = s^2 YES***

HONORS:

Plot these points and find a best curve fit:

X	Y
2	11
3	16
6	26
8	35
10	43.5



Solve these equations for T (T not zero)

$D = VT + \frac{1}{2} A T$ **$A = -V/T$** **$V^2 = -2AD$** **$A = 10$**

$D = VT + \frac{1}{2} (10)T$ **$10 = -V/T$** **$V^2 = -2 (10) D$**
$V = -10T$ **$D = V^2 /(-20)$**

$V^2/(-20) = VT + 5T$

$(-10T)^2/(-20) = (-10T)T + 5T$

$100T^2/(-20) = (-10T)T + 5T$

$-5T^2 = -10T^2 + 5T$
$0 = -5T^2 + 5T$

0 = 5T (-1T +1)
T- 0, 1