Class Data for A Systems Check

Analytical Balances:

Balance #1		Balance #3		Balance #4		Balance #5		Balance #6	
Brass Weight (g)	Reading (g)	Brass Weight (g)	Reading (g)	Brass Weight (g)	Reading (g)	Brass Weight (g)	Reading (g)	Brass Weight (g)	Reading (g)
1.0000g	1.0025g		1.0025		1.0025g				1.0029g
			1.0026		1.0023				
			1.0027						
			1.0028						
2.0000g	2.0012g		2.0012		2.0006g				2.0015g
			2.0014		2.0006				
			2.0017						
			2.0015						
5.0000g	5.0038g		5.0046		5.0024g				5.0046g
			5.0043		5.0026				
			5.0045						
			5.0048						
10.0000g	10.0090g		10.0102		10.0096g				10.0107g
			10.0104		10.0062				
			10.0103						
			10.0105						
50.0000g	50.0108g		20.0068		19.9968g				20.0074g
			20.0068		19.9980				
y= 1.000x + 0.0032			20.0069					y= 1.000x + .002795	
			20.0072						

$r^2 = 0.9999$

$r^2 = 0.999$

$y = 1.0003x + 0.00284$

$y = 0.9998x + 0.0034$

$r^2 = 0.999$

$r^2 = .9999$

Pan Balances:

Balance #1		Balance #3		Balance #4		Balance #5		Balance Prep Room	
Brass Weight (g)	Reading (g)	Brass Weight (g)	Reading (g)	Brass Weight (g)	Reading (g)	Brass Weight (g)	Reading (g)	Brass Weight (g)	Reading (g)
2.00g	2.00g	300g	299.87	10.00g	10.03g	2.00g	2.01g	1000g	9.98g
		50g	50.00g	10.00g	10.01g	10.00g	10.02g		
		100	99.97			50.00g	50.00g		
		200	199.93			100.0g	99.99g		
10.00g	10.01g	20g	20.00	20.00g	20.03g	200.0g	199.96g	50.00g	49.96g
		2	2.03	20.00g	19.99g				
		10	10.0						
		2	2.00						
50.00g	49.96g	50.00	49.98	50.00g	50.00g			100.00g	99.98g
		10	10.00						
		50	49.99						
		100	99.98						
100.00g	99.92g	100.00	99.97	100.00g	99.95g			200.00g	199.97g
		200	199.93						
200.00g	199.81g	200.00	199.92	200.00g	199.87g			300.00g	299.81g
				1.00g	0.99g				
				2.00g	2.00g				
				5.00g	5.01g				

y = 0.9997x + 0.0161
r² = 0.9999

y = 0.9995x + 0.0056
r² = 0.9999

y = 0.999x + 0.0118
r² = 0.9999

y = .9996x + .01247
R² = .999

y = 0.999x + 0.00189
r² = 0.999

Glassware:

50 ml beaker		100 ml beaker		150 ml beaker		250 ml beaker		400 ml beaker	
Volume (ml)	Mass (g)	Volume (ml)	Mass (g)	Volume (ml)	Mass (g)	Volume (ml)	Mass (g)	Volume (ml)	Mass (g)
10.0mL	10.41g	20.0 mL	13.17 g	20.0 mL	14.55 g	25.0 mL	23.44g		
20.0 mL	20.62g	40.0 mL	33.74 g	40.0 mL	36.91 g	50.0 mL	41.50g		
40.0 mL	40.38 g	60.0 mL	54.75 g	70.0 mL	69.25g	75.0mL	63.52g		
15.0	14.49	100	98.67	53	50.67	50	43.00	100	98.36
30	29.68	50	48.94	60	60.54	100	90.17	150	148.44
50	48.72	20	19.21	78	78.29	150	140.20	300	300.13
10.	6.68	20	16.38	35.0	25.38	50.0	41.39	30	25.80
20	16.88	40	36.63	70.0	63.01	75.0	64.32	75	62.75
35	32.85	80	70.10	80.0	70.83	100.0	89.68	100	79.31
10	8.56	20	13.67			25	22.48	50	35.42
20	19.42	40	33.82			50	46.78	75	56.41
40	39.94	60	53.59			100	94.41	100	42.08
10	8.20	28	27.95			53	50.67		
20	18.32	50	49.51			60	60.54		
30	30.14	69	68.16			78	78.29		
19	19.22								
33	33.40	y=0.999x		y=1.041x		y=0.944x		y= 1.050x	
53	52.66	−3.902		−6.379		−2.491		−14.44	
		r^2=0.9848		r^2=.9699		r^2=0.985		r^2= 0.993	

y=1.022x
−1.421
R^2=.9918

± 5%

$\frac{14.44}{400} \times 100 = 3.6\%$

Glassware:

10 ml graduated cylinder		25 ml graduated cylinder		50 ml graduated cylinder		100 ml graduated cylinder		Buret	
Volume (ml)	Mass (g)	Volume (ml)	Mass (g)	Volume (ml)	Mass (g)	Volume (ml)	Mass (g)	Volume (ml)	Mass (g)
3.30	3.29	5mL	4.78g	15mL	14.49	20.0	19.22	10	10.03
6.69	6.95	15mL	14.42g	30mL	29.68	50.0	48.94	20	20.08
10.1	10.55	25mL	24.60g	50mL	48.72	100.0	98.8	30	30.02
		10.0	9.49	10.0	9.97	25.0	25.05	10.0	9.80
y=1.067x		15.0	14.67	20.0	19.76	50.0	49.48	20.0	19.72
-0.21959		20.0	19.60	40.0	39.79	75.0	74.42	40.0	39.65
		5.0mL	4.79g	15.0	14.29	25.0	24.51	10.00	9.97
r^2= 0.9999		25.0	24.53	25.0	24.86	50.0	49.23	25.00	24.90
		15.0	14.56	50.0	49.35	75.0	74.08	40.00	39.91
		10.19	10.46	16.0	15.54	24.18	24.33	10.10	9.09
		17.50	16.90	34.5	33.83	39.82	40.15	23.79	22.73
		22.56	22.20	46.7	45.65	67.82	67.37	36.20	35.14
		7.02	7.04	15.0	13.73	25.0	24.86	15.25	15.33
		13.06	13.17	30.0	28.87	50.0	49.24	30.50	30.69
		18.48	18.62	45.0	43.95	75.0	74.37	41.90	42.10
		5.0	4.24	y=.986x		y=0.9919x		y=1.001x	
		15.0	14.41	-.272		-0.1782		-.272	
		20.0	19.60			r^2=0.9998			
		y=0.992x		r^2=.999				R^2=.9986	
		-0.207							
		r^2=0.998							

5 Drops of water from the buret:

Mass (g)	Volume (ml)
.18	.23
.20	.22
.25	.30
.24	.35
.20	.22
Average Mass: 0.21g	Average Volume: 0.26 ml