Table 1: Experimental Data

S. No.	Data collected from Colorimetric device		Data collected from smartphone device*					
	Conc. (ppm, X-axis)	Abs (Y- axis)	R	G	B	R/G	G/B	R/B
1.	2	0.328	156	113	117	1.38	0.97	1.33
2.	4	0.426	175	166	123	1.05	1.35	1.42
3.	6	0.594	145	176	118	0.82	1.49	1.22
4.	8	0.873	179	127	116	1.41	1.09	1.54
5.	Unknown	0.758	165	134	112	1.23	1.20	1.47

*Corresponding ratio that is linearly increasing with analyte concentration is used for plotting Fig. 2.

Result:

(i). Concentration of Ni in steel sample (using colorimetry) = 7.25 ppm (mg/L)

(ii). Concentration of Ni in steel sample (using digital imaging) = 7.3 ppm (mg/L)

Calculations:

In graph 1:

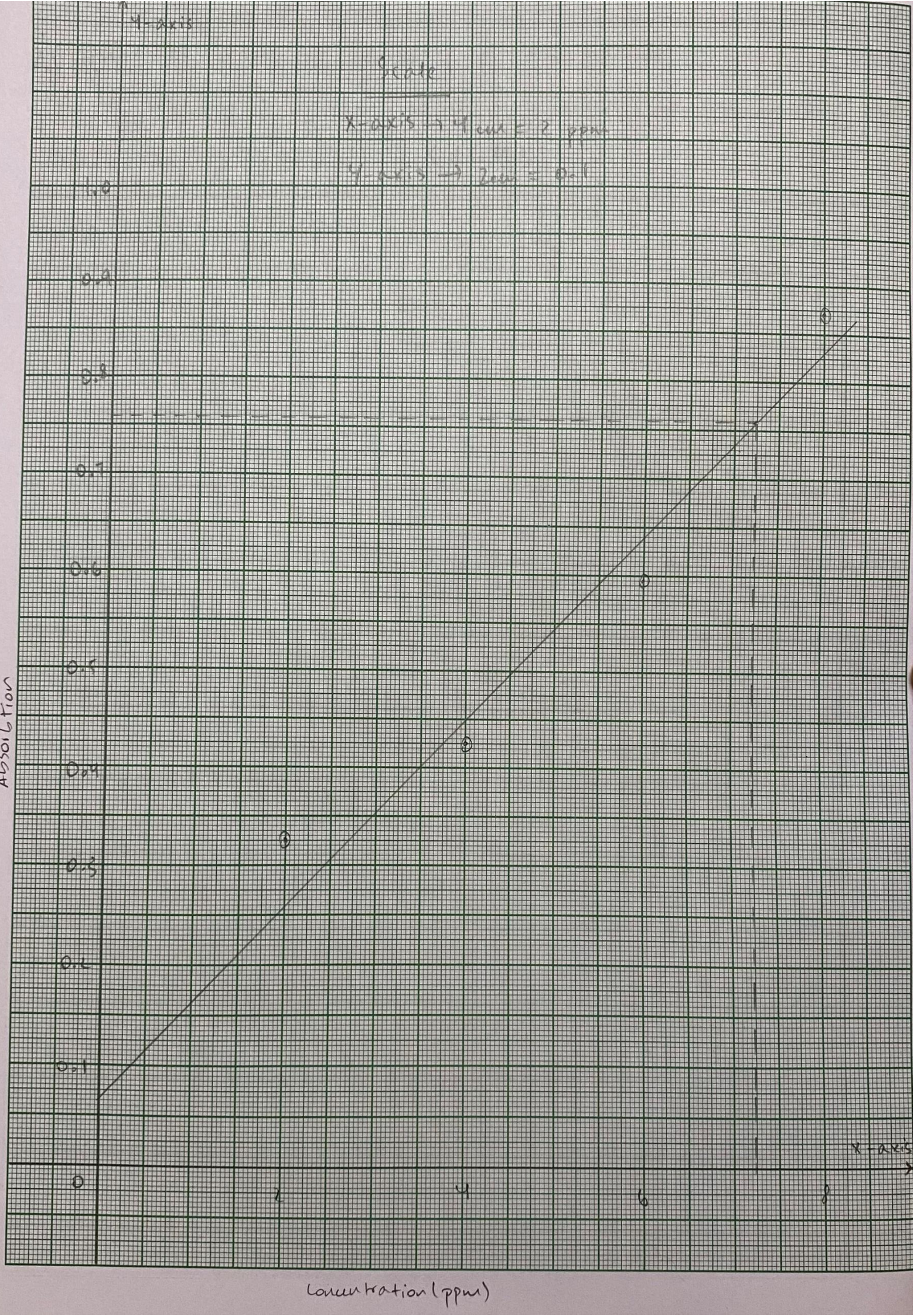
when $y = 0.758$

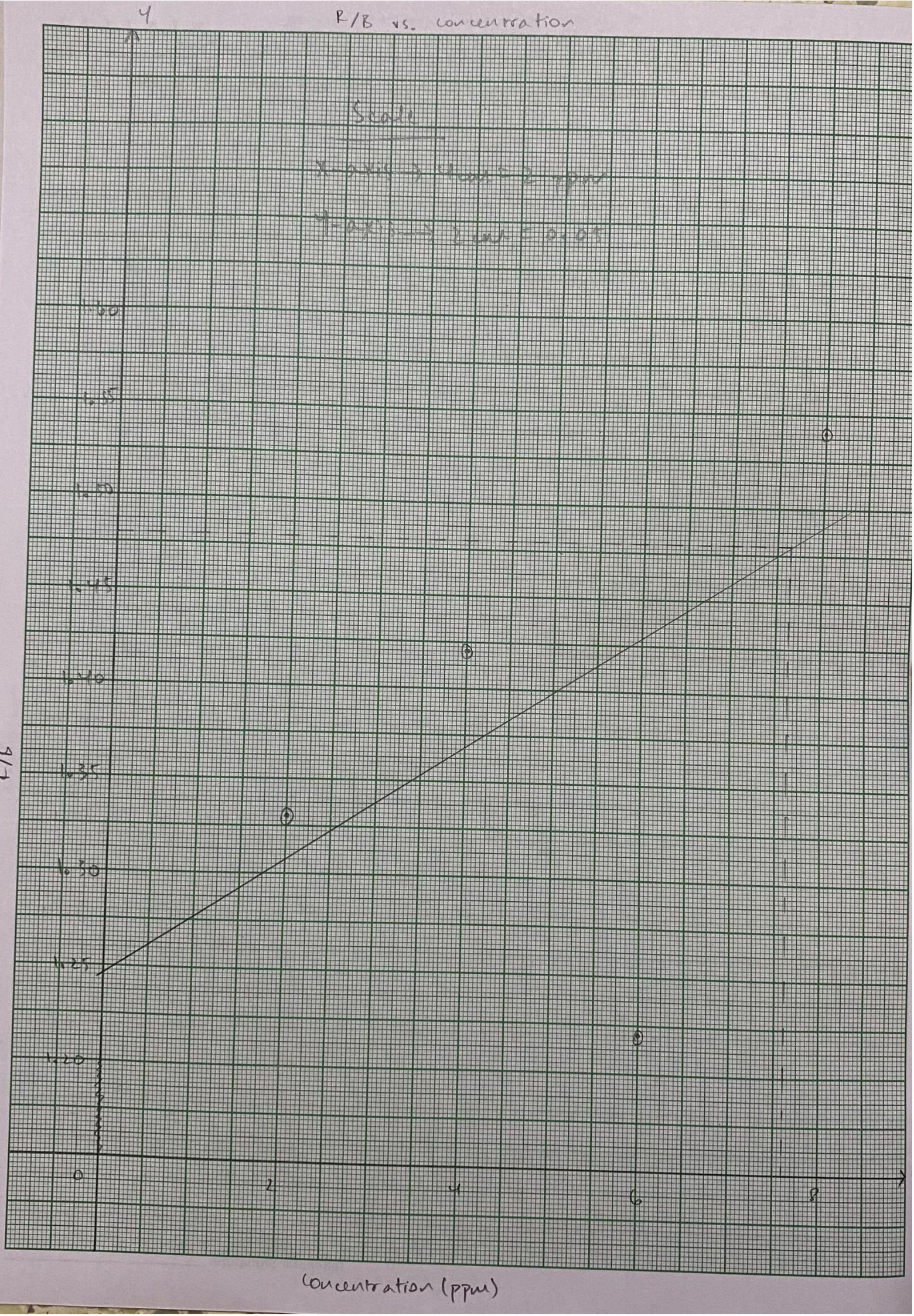
$x = 7.25$ ppm

In graph 2:

when $y = 1.47$

$x = 7.3$ ppm


Y axis
Scale
X-axis → 1 cm = 2 ppm
Y axis → 2 cm = 0.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
2
4
6
8
X axis
Absorbtion
Concentration (ppm)


R/B vs. concentration
Scale
1.60
1.55
1.50
1.45
1.40
1.35
1.30
1.25
1.20
R/B
0
2
4
6
8
Concentration (ppm)