Note: *write the laws wherever needed*

Q1**/** Find the resultant force that acts on a van of mass 2400 kg, if it accelerates at 3.5 m/s^2.

Q2/ Write the Newtons' law of gravitation.

Q3/ What is the difference between absolute and relative gravity?

Q4/ What is the drift correction? why in gravity survey it must be done?

Q5/ What is free air anomaly?

Q6/ What is the difference between F.A.C. and B.C.?

Q7/ In gravity survey, we have to calculate the latitude correction?

Q8/ Gravity readings were taken a cross a valley in order to obtain the average value of surface rock density using Nettelton's Method.
Carry out the necessary corrections and estimate the mean density.
Draw the topography, observed gravity, free air anomaly and Bouguer anomaly profiles on the same sheet. Try densities (1.8, 2.0, 2.2, and 2.4 g/cc) for the Bouguer correction.
Note : datum level is (400 m)

Stations No.	Elevation(m)	Distance(m)	Δg(mgal)
0(E)	395	0	1.08
1	380	100	4.33
2	365	200	7.57
3	355	300	9.74
4	370	400	6.49
5	385	500	3.25
6(W)	395	600	1.08

Q9/ How to calculate density from boreholes?

Q10/ The table below is gravity data which measured at a bore hole in a region of flat-lying sedimentary layers. Find the densities of the sedimentary layers.

st. no.	z(m)	Δg(mgal)	FAC	FAA	density
1	0	0.000	0.000	0.000	
2	-2	0.252			
3	-4	0.494	-1.234	-0.741	2.24
4	-6	0.756	-1.852	-1.096	2.12
5	-8	0.987			
6	-10	1.260	-3.086	-1.826	2.05
7	-12	1.512	-3.703	-2.191	2.18
8	-14	1.775			
9	-16	2.016	-4.938	-2.922	2.24
10	-18	2.331	-5.555	-3.224	1.80
11	-20	2.636			
12	-22	2.961	-6.789	-3.828	1.74
13	-24	3.297	-7.406	-4.109	1.68
14	-26	3.612			
15	-28	3.812	-8.641	-4.829	2.49
16	-30	4.001	-9.258	-5.258	2.55
17	-32	4.179			
18	-34	4.368	-10.492	-6.124	2.55
19	-36	4.578	-11.110	-6.532	2.43
20	-38	4.746			
21	-40	4.935	-12.344	-7.409	2.55
22	-42	5.135	-12.961	-7.827	2.49
23	-44	5.303			
24	-46	5.502	-14.196	-8.694	2.49
25	-48	5.691	-14.813	-9.122	2.55
26	-50	5.880			

density(g/cc)
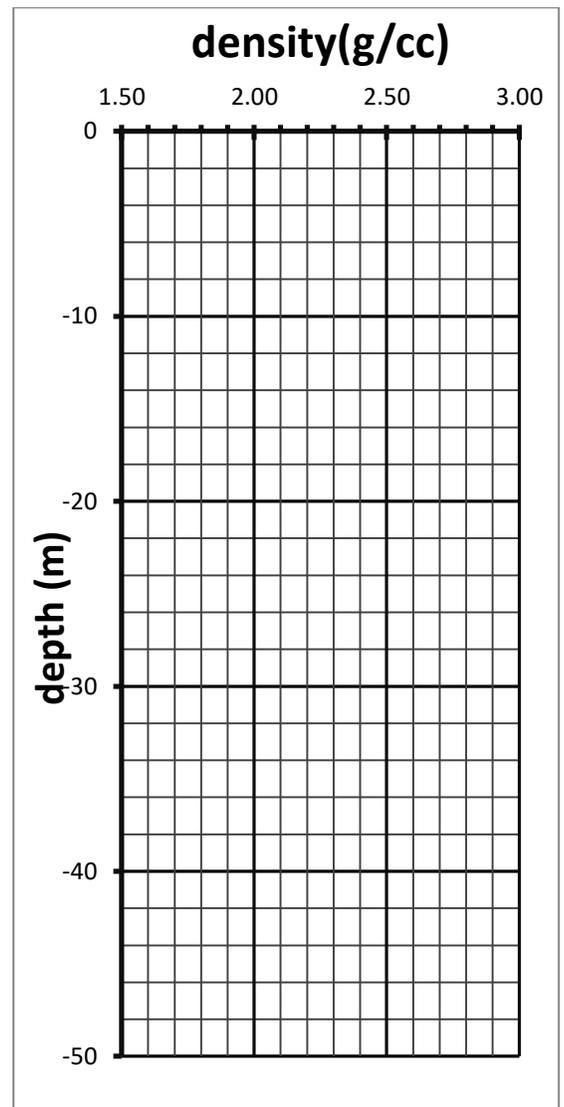
Q11/ What is the difference between Reional and residual?

Q12/ For the following Bouguer anomaly profiles, separate the regional from the residuals using graphical methods (profile smothing).

Good luck

Residual anomaly (mGal)

Bouguer anomaly (mGal)

Distance (m)

Distance (m)
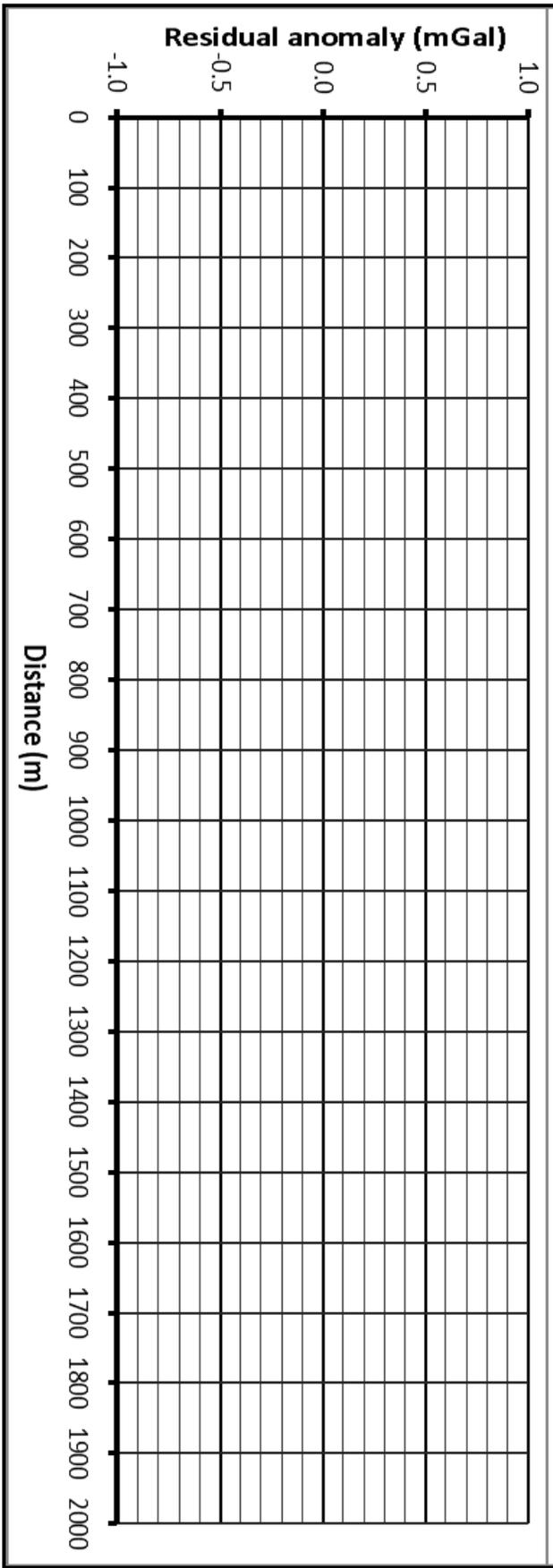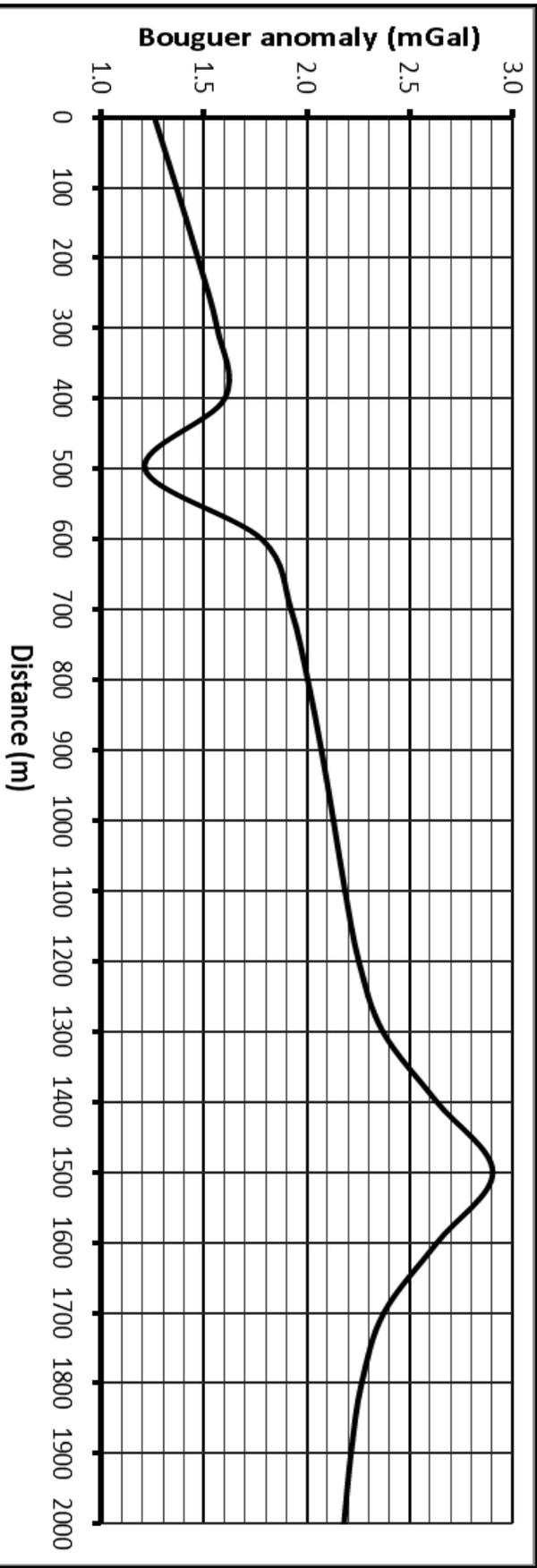
Q13/ For the following Bouguer anomaly map, separate the regional from the residuals using graphical methods (Map smoothing).
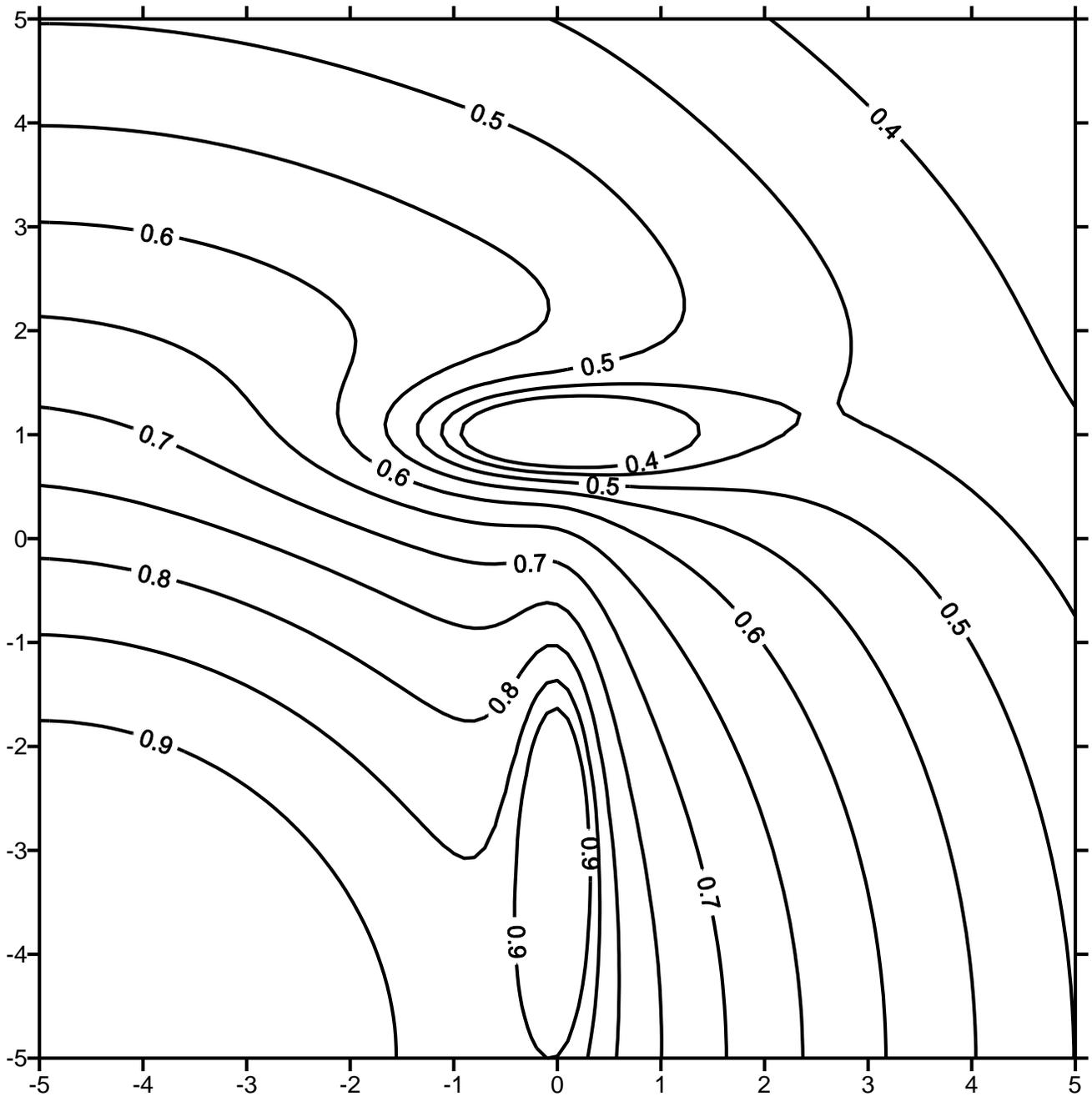
Q14/ Write the laws for calculation the residual and regional by (Griffin's Method) Second Vertical Derivative?

Good luck

Q15/ Calculate and draw the Bouguer Anomalies due to three buried spheres have same radius and density contrast but they are at different depths.

σ=	0.5g/cc
R=	300m
Z1=	400m
Z2=	600m
Z3=	800m

	Z1	Z2	Z3
X(m)	g(mgal)	g(mgal)	g(mgal)
-1000	0.12	0.14	0.14
-800	0.21	0.23	0.21
-600	0.40	0.37	0.30
-400			
-200			
0			
200			
400			
600	0.40	0.37	0.30
800	0.21	0.23	0.21
1000	0.12	0.14	0.14

Good luck
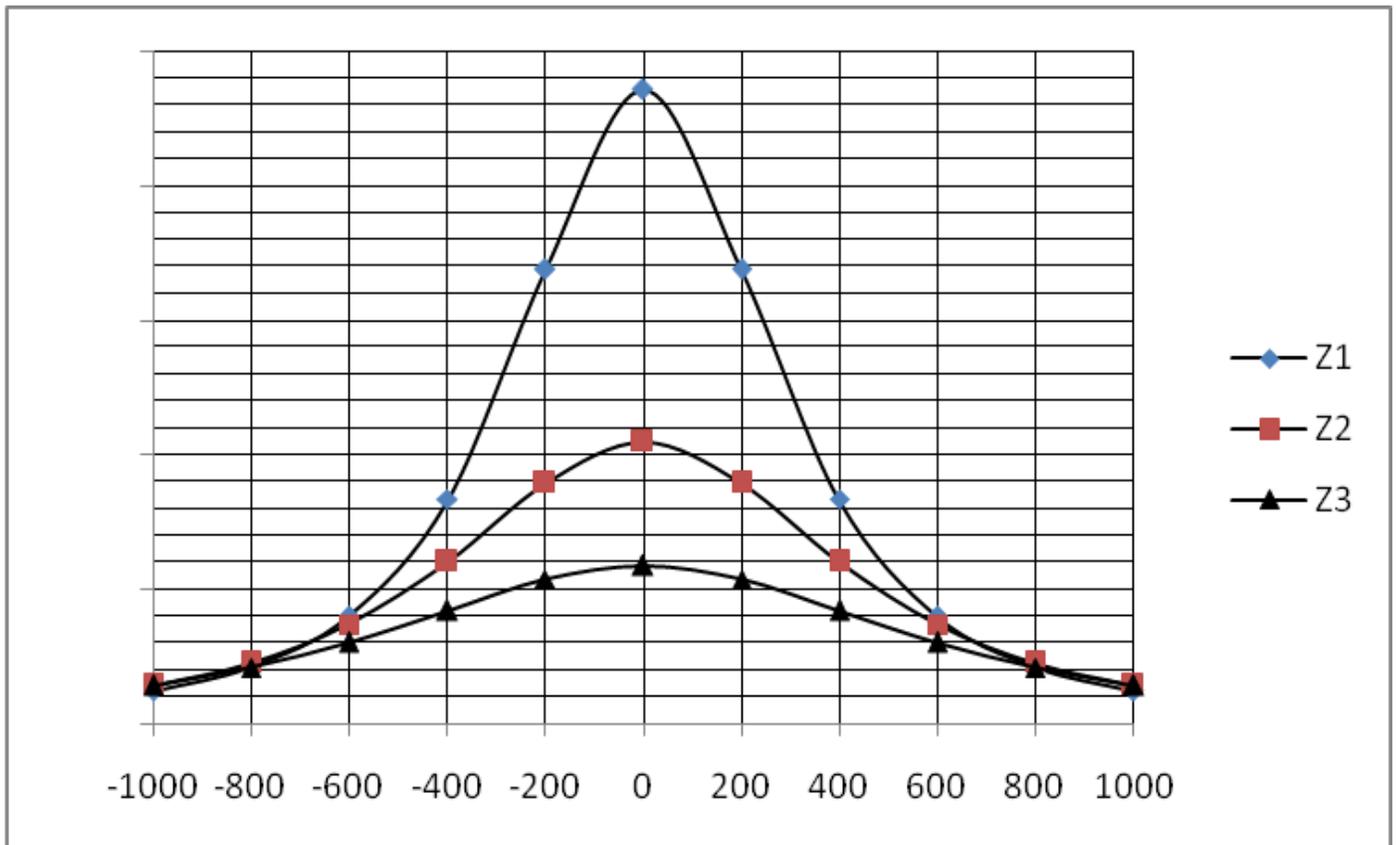
Q16/ Find the depth and radius of subsurface sphere which has BA as shown in this profile. Find the depth and radius of subsurface cylinder for the same profile.
   If the density contrast = 2 g/cc.
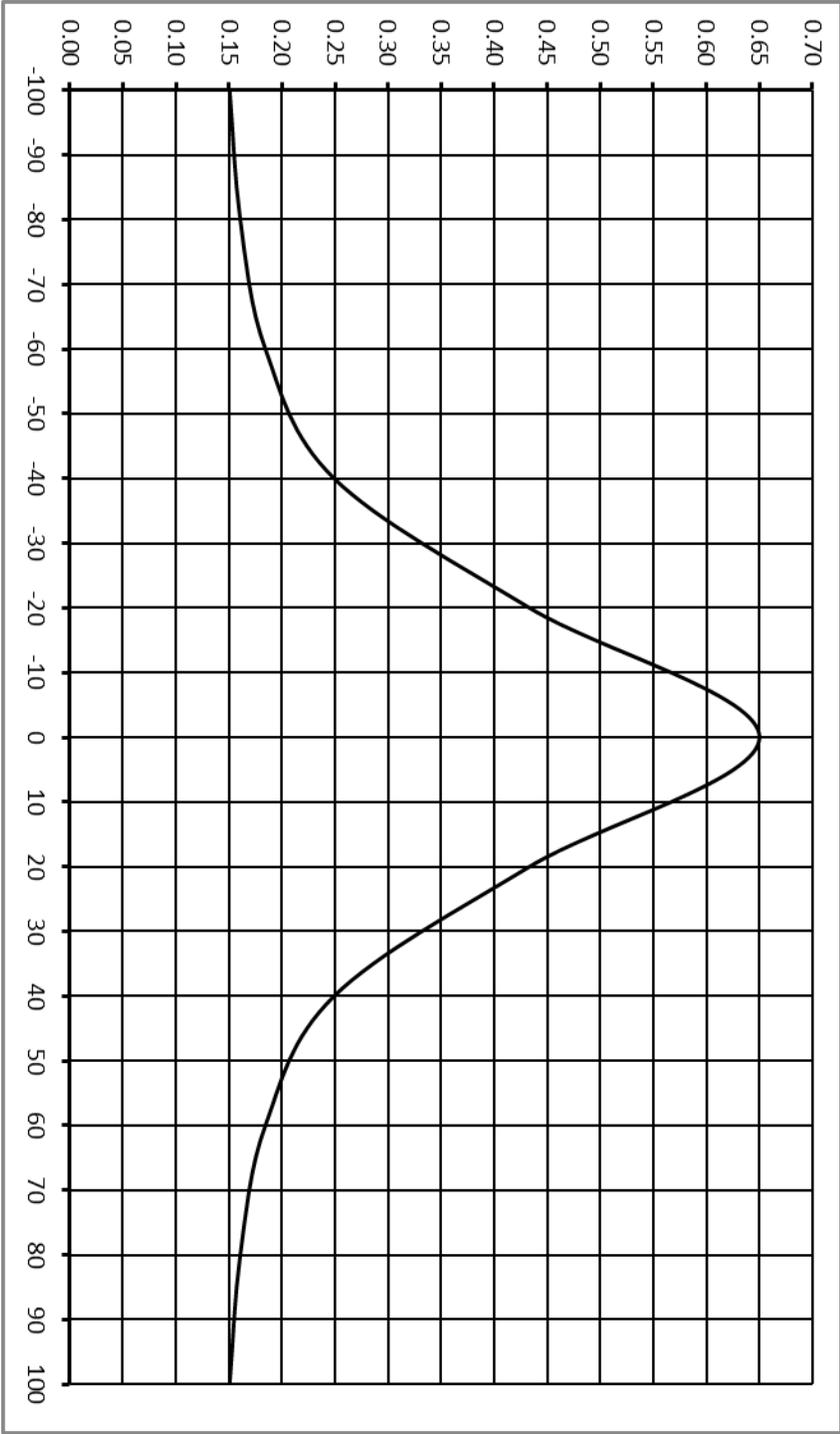
Q17/ The following is a Bouguer gravity profile taken over a graben of Paleozoic rocks (density = 2.75 g/cc) against Mesozoic rocks (density = 2.55 g/cc). Interpret the profile in terms of geology and draw a scaled geologic below the gravity profile.

Distance