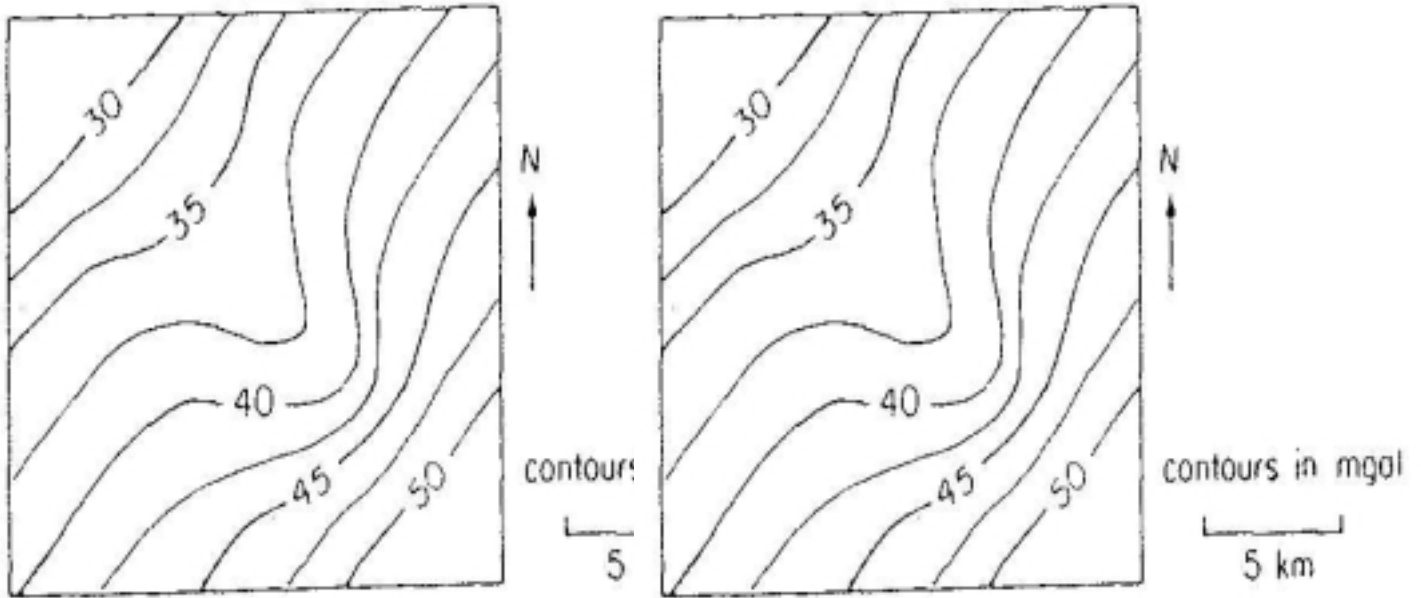


3. Examine the complete Bouguer anomaly map shown below. Assume the regional gravity variation is caused by a lateral change in the thickness of the crust.

a. Draw contours for the regional on the left map and the residual on the right hand map; use a 2.5 mgal contour interval. Indicate (hachures) lows or highs. **Neatness and accuracy count here.**

Contour the regional:

Contour the residual:



b. Which explanation of the local Bouguer anomaly is most probable? Sedimentary rocks of density $2,500 \text{ kg/m}^3$ are intruded by (1) rock salt with density $2,200 \text{ kg/m}^3$ or (2) granite with a density of $2,750 \text{ kg/m}^3$. Explain and justify your thinking.

c. In which direction is the crust thickening? Why?

7. Consider the equations:

$$T(z) = \frac{A}{k} \cdot \left(H \cdot z - \frac{z^2}{2} \right) + \frac{qb}{k} \cdot z + T(0)$$

$$T(z) = T(0) + \frac{A_0 \cdot D}{k} \cdot \left(D - D \cdot e^{-\frac{z}{D}} - z \cdot e^{-\frac{H}{D}} \right) + \frac{qb}{k} \cdot z$$

$$\frac{dT}{dz} = \frac{A(H-z)}{k} + \frac{qb}{k}$$

$$\frac{dT}{dZ} = \frac{A_0 \cdot D}{k} \cdot \left(e^{-\frac{z}{D}} - e^{-\frac{H}{D}} \right) + \frac{qb}{k}$$

a. Explain what the equations are about, what the difference is, what their use is (i.e. show your understanding).

b. Define and explain: A, A₀, H, D, qb, and k.