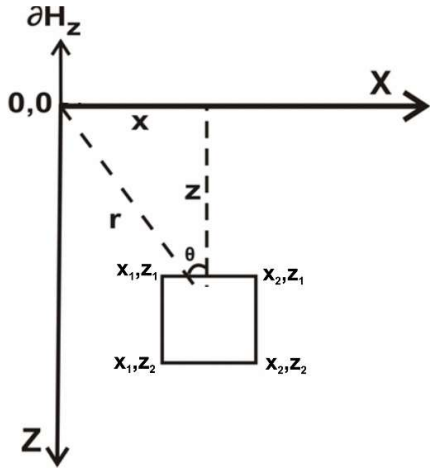
GS543 Tutorial-1

Expression of a particular ore body anomaly (*Hz*) at the point (0,0) due to a rectangular block as shown in the image extending from x1 to x2 ($x_2 > x_1$) in the x direction and z1 to z2 ($z_2 > z_1$) in the vertical direction is given as

$$H_z = \left[\begin{array}{l} z_2 \ln\left(\frac{x_2^2 + z_2^2}{x_1^2 + z_2^2}\right) - z_1 \ln\left(\frac{x_2^2 + z_1^2}{x_1^2 + z_1^2}\right) + \\ 2x_2 \tan^{-1}\left(\frac{x_2\left(z_2 - z_1\right)}{x_2^2 + z_1 z_2}\right) - 2x_1 \tan^{-1}\left(\frac{x_1\left(z_2 - z_1\right)}{x_1^2 + z_1 z_2}\right) \end{array} \right]$$



Write a computer program to compute the response at ore body anomaly (*Hz*) at the point (0,0) if x1=420 to x2=440 and z1=20 to z2=40. Compute the ore body anomaly (*Hz*) value at the point (0,0).