7. The picture shows the isothermal curves which correspond to the temperature function \( T(x, y) \).

(a) A heat seeking particle starts at the point \( A \). Draw the path of this particle. (The particle always moves in the direction of the greatest increase in temperature.)

(b) A heat seeking particle starts at the point \( B \). Draw the path of this particle.

(c) A heat seeking particle starts at the point \( C \). Draw the path of this particle.

8. The temperature of a plate at the point \((x, y)\) is \( T(x, y) = 100 + x^2 - y^2 \). Find the path that a heat seeking particle would travel if it starts at the point \((5, \sqrt{75})\). (The particle always moves in the direction of the greatest increase in temperature.)

9. Sketch and name \( x^2 - y^2 + z^2 = 1 \) in \( 3D \) space.