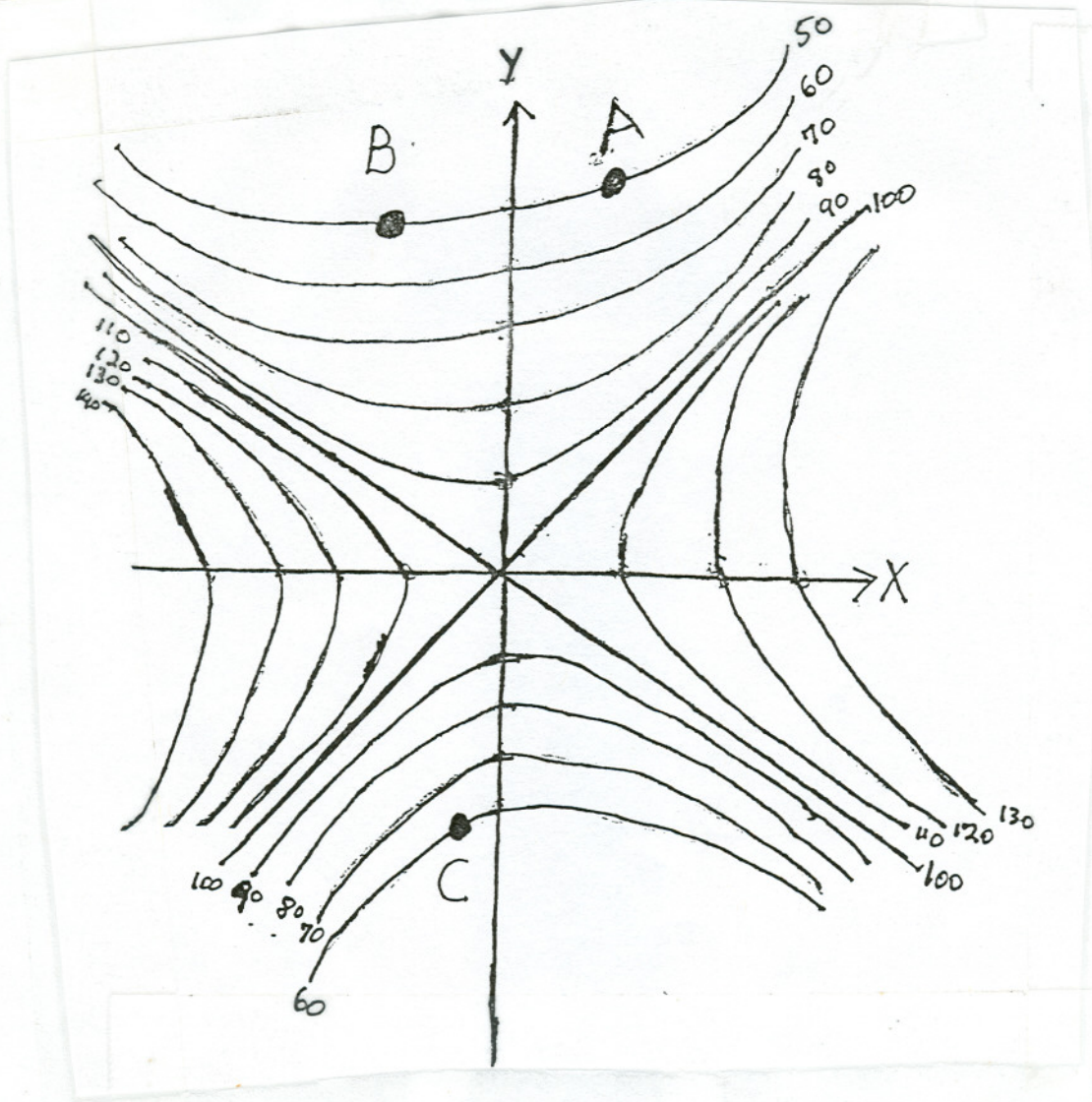


7. The picture shows the isothermal curves which correspond to the temperature function  $T(x, y)$ .



- (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 3-space.