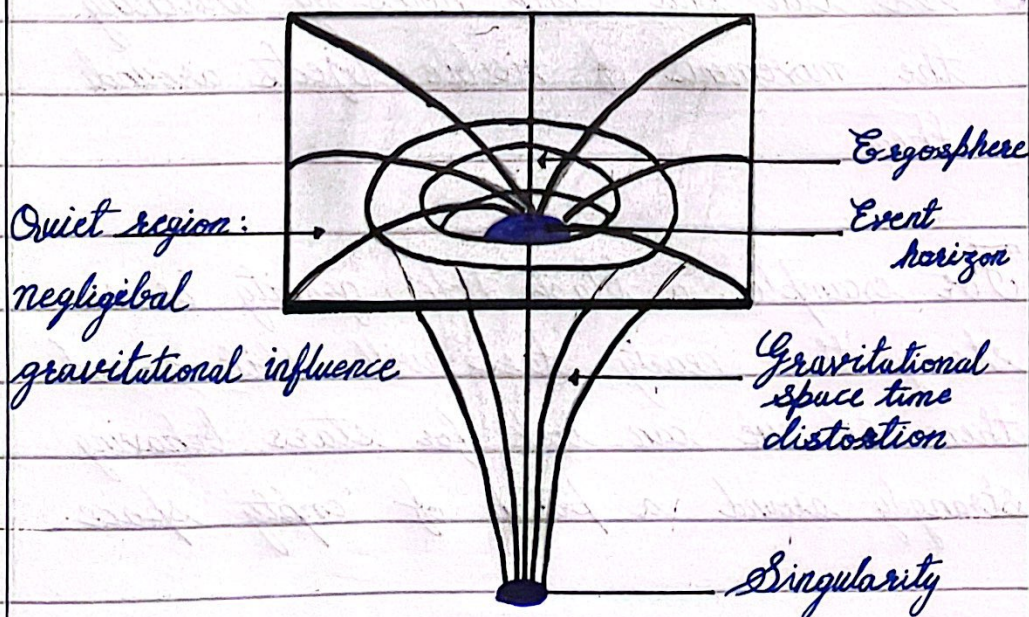


Q. What is 'Black Hole'? How black hole are formed and discovered?

1. Black Hole

i. Definition: They are massive object or region in space that is so dense that within a certain radius, its gravitational field does not let anything escape from it, not even light.

ii. Characteristic: A black hole's surface, called its event horizon, defines the boundary where the velocity needed to escape exceeds the speed of light, which is the speed limit of the cosmos.



iii **Formation:** Black holes are formed when a high density objects like large stars collapse. It is said that one star's end is a black hole's beginning. Hence most black holes are formed from the remnants of a large star that dies in a supernova explosion.

iv **Discovery:** Black holes themselves are invisible because they emit virtually no light and so cannot be seen directly so they are detectable by following method:

- 1 By looking for the stuff that's falling in
- 2 By detecting the gravitational ripples in space-time when they collide.
- 3 We can find black holes by watching the movements of visible objects around them.

For example, a black hole's gravity is so strong that nearby stars will orbit around them, so we can look for stars behaving strangely around a patch of 'empty' space.