

Black Holes Study Sheet

1. event horizon The boundary around a black hole beyond which nothing can escape.
2. singularity The infinitely dense core of a black hole.
3. Hawking radiation The theoretical radiation emitted by black holes due to quantum effects.
4. accretion disk A rotating disk of matter and gas that spirals into a black hole.
5. gravitational pull The immense force that draws objects into a black hole.
6. Schwarzschild radius The distance from a black hole's center to its event horizon.
7. wormhole A hypothetical shortcut through spacetime that may connect black holes.
8. supermassive A classification of black holes with millions or billions of solar masses.
9. spaghettification The stretching and elongation of objects as they approach a black hole.
10. relativity Einstein's theory that describes the behavior of gravity and spacetime.
11. X-ray astronomy The study of black holes through high-energy X-ray emissions.
12. escape velocity The speed needed to break free from a black hole's gravitational grip.
13. quasar An energetic and distant celestial object powered by a supermassive black hole.
14. tidal forces The differential gravitational forces experienced near a black hole.
15. interstellar medium The material between stars that can feed into a black hole's accretion disk.
16. event horizon telescope The network of telescopes that captured the first image of a black hole.
17. frame dragging The effect of a spinning black hole on nearby spacetime.
18. penrose process A mechanism that extracts energy from a rotating black hole.
19. photon sphere The region around a black hole where light can orbit in stable paths.
20. ergosphere The region near a rotating black hole where objects can still escape but are strongly influenced by its spin.