

Flux-Luminosity Relations

1. Star A appears four times as bright as star B when viewed from Earth. Why might this be so (list two possible scenarios)?
2. Using stellar parallax, it is determined that both stars lie the same distance away. Given this, can you determine which star is more luminous (gives off more energy per second)? If so, which one is more luminous, and by how much (2x as bright, 3x as bright, etc.).
3. Star C appears four times as bright as star D when viewed by Earth, but they are too far away to measure their distances (why?). If, through other methods, we know that star C is as luminous as star D, which star is farther away, and how much farther away is it (2x as far, 3x as far, etc.)?