

25 Standard candles – Part 2 —Answers

Answers

Work through these after trying the questions yourself.

25.1 An object whose luminosity is known from its type.

25.2 Its distance.

25.3 Its luminosity.

25.4 They always reach about the same peak luminosity.

25.5 $d = \sqrt{L/(4\pi F)}$.

25.6 Parallax needs a measurable shift in a star's angle as the Earth orbits, and that shift becomes far too small for distant stars. A standard candle instead uses a known luminosity, so its distance can be found from the flux at any distance we can still detect.

25.7 Apparent brightness (flux) alone cannot give a distance—a faint star could be dim-and-near or bright-and-far. Only with a *known* luminosity can the flux be turned into a distance, letting astronomers chart how distance relates to the speed galaxies recede.