

ASG v1 EX 26.1 (Hubble's law)

Hubble's law may be written thus:

$$v = Hd, \quad H \approx 72 \text{ km/sec / Mparsec}$$

$$= \left(72 \frac{\text{km}}{\text{sec}} \right) \left(0.780 \text{ MParsecs} \right)$$

↑ distance to M31.

$$\boxed{v_{\text{M31}} = 56 \text{ km/sec}} \quad (\text{by Hubble's Law})$$

The most distant observable nebulae are about 13.2 billion light years away (www.nasa.gov/mission_pages/hubble/science/fastest-galaxy.html)

[accessed Dec 6, 2011]. This is $\approx 4 \times 10^9$ parsecs.

or 4000 MParsecs. So

$$\boxed{v = (72)(4000) = 288,000 \text{ km/sec}}$$

which is just under the speed of light