

Answer on Question: 54933

A distant quasar is observed to have a redshift $v/c = 0.15$, where v is the recession velocity of the quasar, and $c = 300,000$ km/s is the speed of light.

(a) What is the recession velocity v of the quasar in units of km/s? (2 points)

A. 7.47×10^{-5} km/s

B. 45,000 km/s

C. 0.059 km/s

D. 1.43 km/s

E. 1.97×10^6 km/s

Solution:

$$v/c = 0.15$$

$$v = 0.15c = 0.15 \times 3 \times 10^5 \text{ km/s} = 45,000 \text{ km/s}$$

Answer: 45,000 km/s (B)