

Quiz**Name**

1. Review the Sigma notation and the principle of induction and then verify the formula $\sum_{k=1}^n k^3 = \frac{1}{4}n^2(n+1)^2$.

2. The smallest angle of parallax that most ground-based telescopes can measure is about 0.01 seconds. Use the information of Problem 3.36 along with the relationship $1 \text{ ly} = 63,421 \text{ au}$, to show that such telescopes can detect the distances of stars that are about 325 ly away. The Hubble space telescope has extended this reach to stars that are about 10,000 ly away. (The satellite Gaia of the European Space agency has recently increased the range greatly.)