**HW # Chapter 5 @ Applications of Normal Distributions**

**Due Feb 15, 2022**

**Page 143**: Fundamentals of Biostatistics @ Bernard Rosner: 8th Edition

[5.14-5.16 pg. 142]

Serum cholesterol, an important risk factor of coronary disease, approximately follows a N(mean=219 mg/dL, sd=50 mg/dL) distribution, where mg/dL refers to milligrams per deciliter.

5.14) If the clinically desirable range for cholesterol is <200mg/dL, what proportion of people have clinically desirable levels of cholesterol?

5.15) Some investigators believe that only cholesterol levels over 250 mg/dL indicate a high-enough risk for heart disease to warrant treatment. What proportion of population does this group represent?

5.16) What proportion of the general population has borderline high-cholesterol levels- that is, >200 but <250 mg/dL?

**[5.17-5.18 pg. 142]**

People in age group 1-14 years are hypertensive if their systolic blood pressure (SBP) is higher than 115mmHg and people in 15-44 years are hypertensive if their SBP is higher than 140 mmHg. It is also assumed that the SBP is normally distributed with mean 105 mmHg and standard deviation 5 mmHg for people in age group 1-14 years and mean 125mmHg and standard deviation10 mmHg for people in age group 15-44 years.

5.17) What proportion of 1-to-14-year-old people are hypertensive?

5.18) What proportion of 15-to-44-year-old people are hypertensive?

New Question

Intelligence quotient (IQ) score for a population is normally distributed with mean 102 and standard deviation 14. Answer the following questions:

(a) What percent of people will have IQ below 75?

(b) What percent of people will have IQ between 75 and 100?

(c) Find the IQ score for the top 5% of IQ distribution?