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Environmental Engineering Fundamentals.
Module Assessment 3

3.1 Compute the following:

   a. $P(10) = 119.5$

18+31+23+20+7+1+2 = 102

10/100*102 = 10.2

=11th Value

$P(10) = 110+129/2$

119.5

   b. $P(50) = 159.5$

18+31+23+20+7+1+2 = 102

50/100*102= 51

150+ 169/2

= 159.5

   c. $P(95) = 199.5$

18+31+23+20+7+1+2 = 102

95/100*102 = 97

190+206/2

=199.5

3.4 A normal distribution has a standard deviation of 30 and a mean of 20. Find the probability that :

a. $x \geq 80 = 2\%$

$P (x \geq 80) = 80 -20/ 30 = 60/30 = 2$

$P= 0.9775$

1-0.9775

=0.0275*100 = 2%

b. $x \leq 80 = 2\%$

$P (x \leq 80) = 80 - 20 = 60/30 = 2$

$P= 0.9775$

1-0.9775

=0.0275*100 = 2%

 c. $x \leq -70 = 99\%$

$P(x \leq -70) = -70 - 20 = -90/30 = -3$

P= 0.00135
1-0.00135
= 0.99856*100
=99%

d. $50 \le x \le 80 = 56\%$
$P (50 \le x \le 80)$

$P (50) = 50-20/30 = 1$
P= 0.84134

P(80)
$P(80) = 80-20/30 = 60/30 = 2$
P= 0.9775

$P (50 \le x \le 80) = (0.9775 - 0.84134 = 0.5641)$
$0.5641*100 = 56\%$

3.8 How much beer is consumed in the United States every day?
300,000,000(estimated population in the states)
300,000,000 * 20/100 (20%) (assuming that 20% of the population drinks beer everyday) =
60,000,000* 1 galloons of beer =
60,000,000 galloons beers are consumed everyday

3.10 How many automobile tires are sold annually in the United States? Make reasonable assumptions.

300,000,000 * 35/100 = 105,000,000
105,000,000 *2 (assuming that each person buys at least 2 tires a year) = 210,000,000 tires sold annually.