HW.14 – 7.4: 3, 5, 7, 9, 14

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3. The plotted points do not lie within the provided bounds, so the data are not from a population that is normally distributed.

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7. The normal probability plot is roughly linear, and all the data lie within the provided bounds, so the sample data should come from a population that is normally distributed.

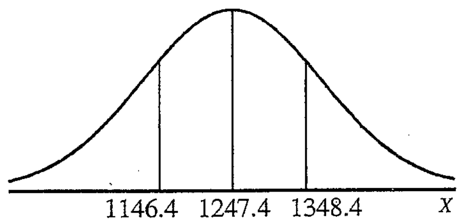
9. **(a)** The normal probability plot is roughly linear, and all the data lie within the provided bounds, so the sample data should come from a population that is normally distributed.

(b) $\sum x = 48{,}815$, $\sum x^2 = 61{,}211{,}861$, and $n = 40$. Thus, $\bar{x} = \frac{\sum x}{n} = \frac{49{,}895}{40} \approx 1247.4$ chips

and $s = \sqrt{\frac{\sum x^2 - \frac{(\sum x)^2}{n}}{n-1}} = \sqrt{\frac{62{,}635{,}301 - \frac{(49{,}895)^2}{40}}{40-1}} \approx 101.0$ chips.

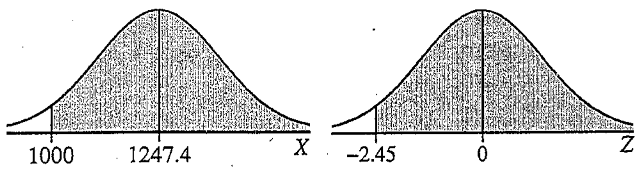
(c) $\mu - \sigma \approx \bar{x} - s = 1247.1 - 101.0 = 1146.1$ and

$\mu + \sigma \approx \bar{x} + s = 1247.1 + 101.0 = 1348.1$.



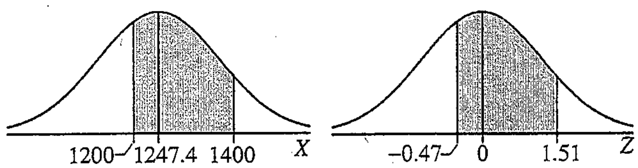
(d) $Z = \frac{X - \mu}{\sigma} = \frac{1000 - 1247.4}{101.0} \approx -2.45$.

From the table, the area to the left of $Z = -2.45$ is 0.0071, so $P(X > 1000) = 1 - 0.0071 = 0.9929$.



(e) $Z_1 = \frac{X_1 - \mu}{\sigma} = \frac{1200 - 1247.4}{101.0} \approx -0.47$;

$Z_2 = \frac{X_2 - \mu}{\sigma} = \frac{1400 - 1247.4}{101.0} \approx 1.51$.



From the table, the area to the left of $Z_1 = -0.47$ is 0.3192 and the area to the left of $Z_2 = 1.51$ is 0.9345. Thus, $P(1200 \le X \le 1400) = 0.9345 - 0.3192 = 0.6153$. The proportion of 18-ounce bags of Chips Ahoy! that contains between 1200 and 1400 chips is 0.6153, or 61.53%.

HW 14 (2)

14. The plotted points are not linear and do not lie within the provided bounds, so the data are not from a population that is normally distributed.