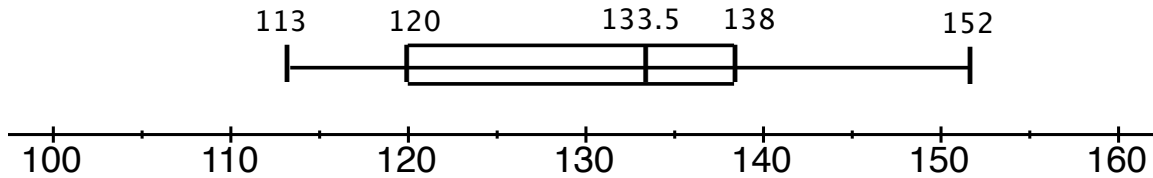


## Math 107 Quiz #6 Answers

1. Putting the list in order:      113    117    120    125    132    135    136    138    142    152

(a) Low = 113,    Lower Quartile = 120,    Median = 133.5 (mean of 132 and 135)  
       Upper Quartile = 138,    High = 152

(b) Box and whisker plot:



(c) Calculating the mean: Mean = (sum of all values)/10 = 1310/10 = 131

Values	Deviation of each value from the mean	(Dev. of each value) <sup>2</sup>
113	113 - 131 = -18	324
117	-14	196
120	-11	121
125	-6	36
132	1	1
135	4	16
136	5	25
138	7	49
142	11	121
152	21	441
		Total: 1330

$$\text{Standard Deviation} = \sqrt{\frac{1330}{9}} \approx = \boxed{12.1564 \text{ millimeters}}$$

2. (a) i. Since 255 is one standard deviation below the mean and 285 is one standard deviation above the mean, approximately 68% of the pregnancies have a length between 255 and 285 days.

ii. Since 285 is one standard deviation above the mean, we have that the percentage will be approximately 50% + 34% = 84%.

(Get all the values below the mean, which is 50% in addition to those that are above the mean and below 285, which is half of 68%.)

iii. Since 240 days is 2 standard deviations below the mean, we have that the percentage of pregnancies below is approximately 2.5%.

(Approx. 95% lies within 2 standard deviations, which means that outside of 2 standard deviations lies approx. 5% of the data. We are looking at just the lower half of that 5%.)

(b) Standard Score:  $z = \frac{276-270}{15} = 0.4$

Since the percentile for  $z = 0.4$  is 65.54%, this means that the percentage of pregnancies with a length of 276 days or less is approx. 65.54%. So, the percentage of pregnancies with a length greater than 276 days is approx. 34.46%.