Multiple Choice:

1. B	2. D	3. C	4. C	5. D	6. E	7. C
8. B	9. B	10. B	11. E	12. C	13. D	14. E
15. C	16. D					

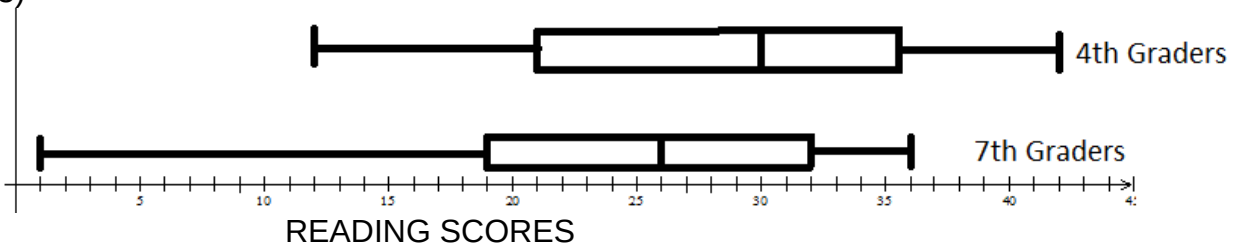
Free Response

1)

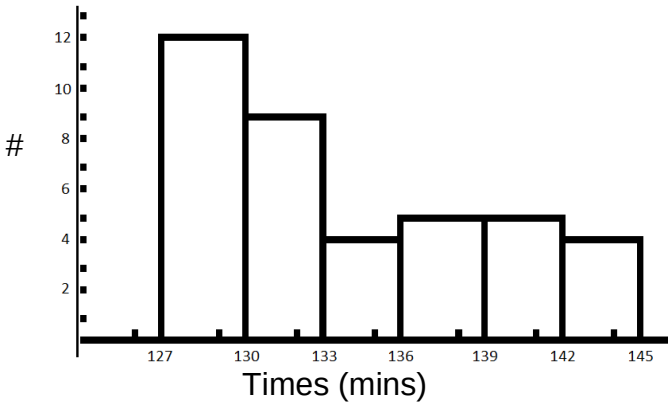
4th Grade						7th Grade					
				0	1						
				0							
			2	1	2						
			8	5	1	5	8	8			
		2	0	0	2	0	3	3	4		
	9	8	6	5	2	5	7	8			
			2	1	3	0	0	1	3	3	3
9	7	6	5	5	3	5	6				
			2	0	4						

2) Both distributions of reading scores are unimodal and skewed left. The 4th graders have a higher median score (30) than the 7th graders median score (26). The 4th grade scores are more spread with an IQR of 14.5 than the 7th graders with an IQR of 13. The range of the 4th graders is (12, 42), which is smaller than the range of the 7th graders, which is (1, 36). Neither distribution has an outlier.

3)



4)
(a)



(b) The cummulative frequency histogram would be left skewed, and would keep increasing as the x-variable increased.

(c) The distribution is skewed right and unimodal. The center is at the median of 132 minutes. The IQR is 8 minutes. The range is (127, 144).

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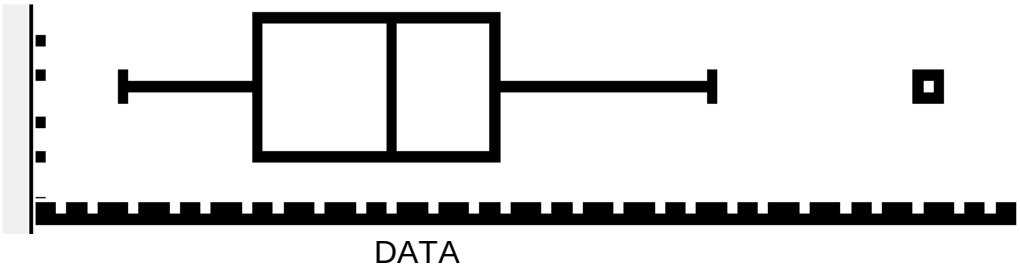
5) Mean = 167.67 lbs; St. Dev. = 33.38 lbs

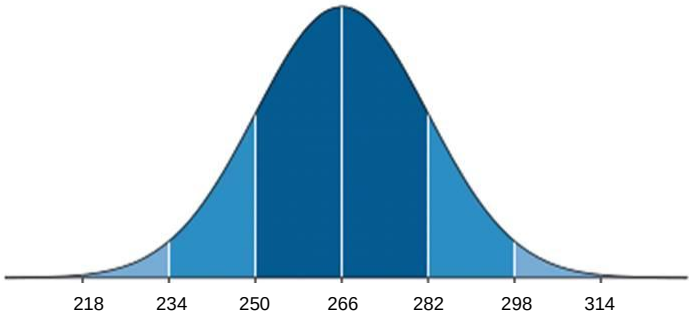
6) Min = 110; Q1 = 138.5; Med = 166.5; Q3 = 188; Max = 280



7.) LF = 138.5 – 1.5(49.5) = 64.25 No lower outlier
UF = 188 + 1.5(49.5) = 262.25 There is one upper outlier at 280.

8) The median and IQR would be more appropriate since there is an upper outlier.

9) N(266, 16)



10) P(X > ?) = 0.16 ? = 282 days

11) 218 to 314 days ** 3 std. deviations above and below

12) P(X < ?) = 0.025 ? = Less than 234 days

13) $z = \frac{257 - 266}{16} = -0.5625$

14) P(x < 257) = 28.7%

15) P(x > 280) = 19.08%

16) P(260 < x < 270) = 24.49%

17) P(X < ?) = 0.90 ? = 286.505 days

18) P(X < ?) = 0.25 ? = 255.208 days

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19) N(1500, 75)

(a) P(x < 1410) = 11.51%

(b) P(x > 1550) = 25.24%

(c) P(1563 < x < 1648) = 17.62%

(d) P(X < ?) = 0.85 ? = 1577.7 hours

(e) Z = invNorm(0.05, 0, 1) = -1.645 $= \frac{1200 - \mu}{75}$

$\mu = 1323.38$ hours

(f) Z = invNorm(0.05) = -1.645 $= \dfrac{1200 - 1500}{\sigma}$

$\sigma = 182.37$ hours

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20) N(12.2,0.5)

(a) P(x > 12) = 65.54%
(b) P(X < ?) = 0.25 ? = 11.86 oz.

(c) P(X < Q1) = 0.25 Q1 = 11.86 oz
P(X < Q3) = 0.75 Q3 = 12.54 oz.
IQR = 12.54 – 11.86 = 0.68 oz.

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21) (a)

	Always wear glasses	Sometimes wears glasses	Never wear glasses
Boys	40	48	161
Girls	36	55	144

(b) Always = 15.7%
Sometimes = 21.3%
Never = 63.02%

(c) P(N|B) = 67.4% of boys never wear glasses.

(d)

	Boys	Girls
Always	16.1%	15.3%
Sometimes	19.3%	23.4%
Never	64.7%	61.3%

(e) There does not appear to be an association between sex of the student and whether they wear glasses or not. The marginal distribution of glasses wearing is equal to the conditional distribution of gender. The same percents of each gender are seen in each type of glasses wearing.