

Math Week 7 Practice Problem Solutions

1. Unit 1 mean = 71.8
 median = 73
 mode = 73

Unit 2 mean = 76.2
 median = 73
 mode = 73

Unit 2 was the better test. Higher average when all else was equal.

2. Class A

Class B

$$\mu = \frac{\sum X}{n}$$

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$$\mu = \frac{94 + 56 + 89 + 67 + 84}{5}$$

$$= \frac{84 + 77 + 76 + 81 + 74}{5}$$

$$\mu = 78$$

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$$\sigma = \sqrt{\frac{\sum (x_i - \mu)^2}{n}}$$

$$\text{Class B } \sigma = 3.61$$

$$\sigma = \sqrt{\frac{(94-78)^2 + (56-78)^2 + (89-78)^2 + (67-78)^2 + (84-78)^2}{5}}$$

$$\sigma = \sqrt{\frac{(16)^2 + (-22)^2 + (11)^2 + (-11)^2 + (6)^2}{5}}$$

$$\sigma = \sqrt{\frac{256 + 484 + 121 + 121 + 36}{5}}$$

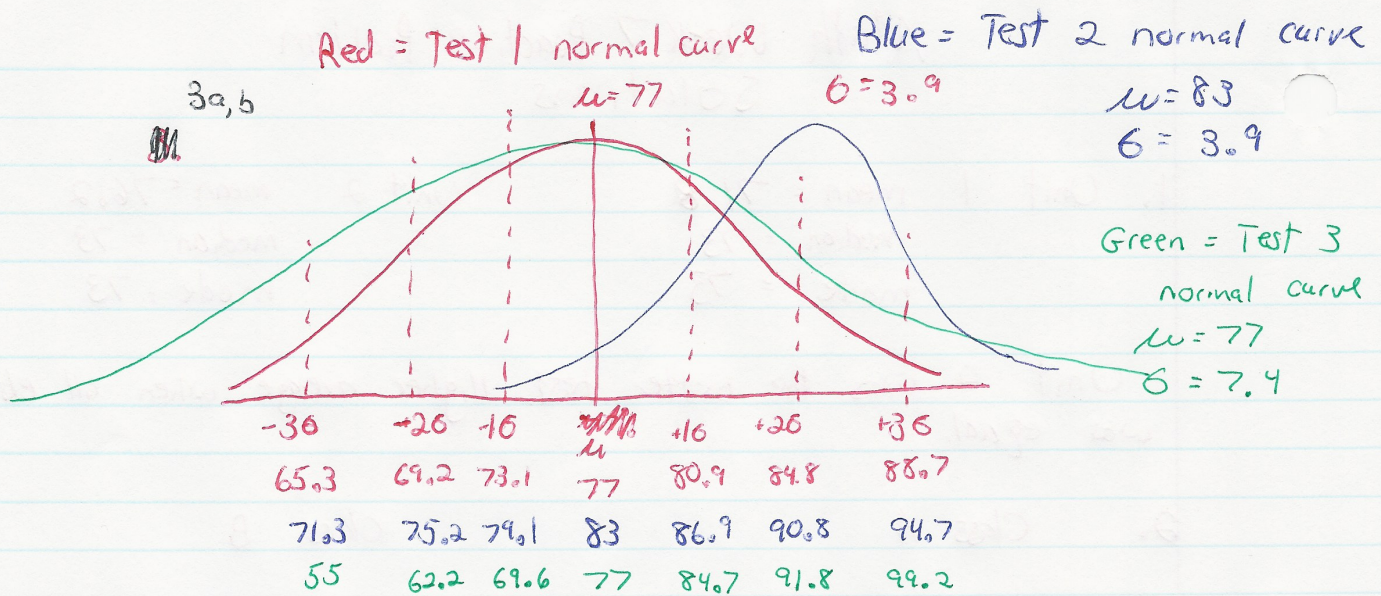
$$\sigma = \sqrt{\frac{1018}{5}}$$

$$\sigma = \sqrt{203.6}$$

$$\sigma = 14.2$$

★ Calculation not shown

With averages the same, class B had more consistent performance as indicated by a smaller standard deviation



- Test 1 had a low average and low standard deviation
- Test 2 had a high average and low standard deviation
- Test 3 had a low average and large standard deviation

This indicates more accurate and stronger/consistent performance in test 2, but poor, inconsistent and inaccurate performance in test 3.

c) Oliver Test 1 : $\mu + 2\sigma = 77 + 2(3.9) = 84.8\%$
 2 : $\mu - 1\sigma = 83 - 1(3.9) = 79.1\%$
 3 : $\mu + 3\sigma = 77 + 3(7.4) = 99.2\%$