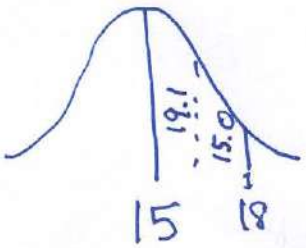
Normal Distribution Problems **Name:** Answers

1) On a nationwide exam, the Adams School had a mean score of 875 and a standard deviation of 12. The Boswell School had a mean score of 855 and a standard deviation of 20. In which school was there greater consistency in the scores? Explain your answer.

The Adams School is more consistent; it's S.D. is smaller, which means the data is less spread out than Boswell's data.

2) Let's assume that the amount of time that a teenager plays video games in any given week is normally distributed. If a teenager plays video games an average of 15 hours per week, with a standard deviation of 3 hours, what is the probability of a teenager playing video games between 15 and 18 hours a week?

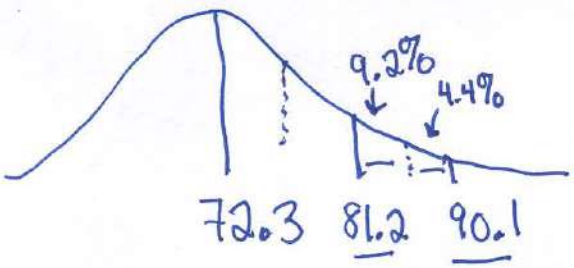


19.1%
+ 15.0
34.1%

34.1%

3) A teacher has 184 students in her math class. The scores on the final exam are normally distributed and have a mean of 72.3 and a standard deviation of 8.9. How many students in the class can be expected to receive a score between 81 and 90, approximately?

About 25 students

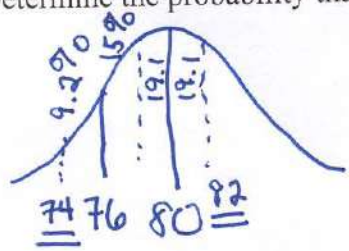


72.3 + 1 S.D = 81.2
72.3 + 2 S.D = 90.1

9.2
+ 4.4
13.6%

.136 × 184 students
= 25

4) A set of normally distributed student test scores has a mean of 80 and a standard deviation of 4. Determine the probability that a randomly selected score will be between 74 and 82.



from −1.5 S.D to .5 S.D

9.2%
15
19.1
19.1
62.4

62.4%

5) Twenty students (who happen to live in the Land of Giants) have the following heights:
70, 60, 75, 68, 85, 86, 78, 72, 82, 88, 88, 73, 74, 79, 86, 82, 90, 92, 93, 73. Is this data normally distributed? Justify your answer and show your work.

This data is approx. normally distributed b/c 70% of data is within 1 S.D. of mean & this is quite close to 68.2%

mean = 79.7
x = 8.7

− 8.7 | 79.7 | + 8.7

71 — 88.4

14/20 = 70%