Standard Normal Curve

Begin working on this worksheet with a partner.

1. Discuss with a partner how you would be able to compare someone's ACT and SAT score, knowing the ACT is scored from 1-36 and the SAT is scored from 400-1600. Write down a couple ideas below.

2. One person got a 25 on the ACT and another got a 1280 on the SAT. Based on your conversation above, who did better? Show your work.

3. Discuss and jot down notes from our conversation on standardizing.
    a. What is standardizing?

    b. Why do we need to standardize?

    c. How do we standardize?

4. Work through the following examples as a class:
    a. Knowing the average of the ACT is 20.8 and the standard deviation is 5.8, what would be the standardization for an ACT score of 25?

    b. Knowing the SAT has an average of 1051 and SD of 211, what would the standardization of an SAT of 1280 be?

5. Explain to your partner how we solved the standardization. Then go back and answer question number 2 using the information we just found.

6. Discuss percentiles and probability and how they expand on the concept of standardization.

Pull up the video and begin using the applet here to solidify our understanding: https://www.geogebra.org/m/rhdzv7xb

7. Work through the following problems together as a class:
    a. A manufacturer claims a light bulb will last for an average of 500 hours with an SD of 15 hours. What is the chance the sample average will be less than 475 hours?

    b. The average American household has 3.01 televisions with an SD of 1.2. What is the chance the average number will be between 2.5 and 3 TV's?

8. Work through the following problems alone, then compare your answers with your neighbor.
    a. The average female BMI is 25.12 and an SD of 5.3. What is the chance that a randomly selected woman will have a BMI higher than 27?

    b. With a score of 28 on the ACT, what percentile would you be in?