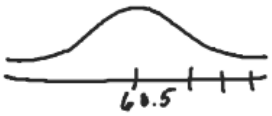
$z = \frac{x-\mu}{\sigma}$



2. Use the information from the table below of heights of Americans aged 18 to 24.

Heights of American Young Adults (in inches)

	Men	Women
Mean μ	68.5	65.5
Standard Deviation σ	2.7	2.5

a. Miguel is 74 inches tall. What is his percentile for height?

table

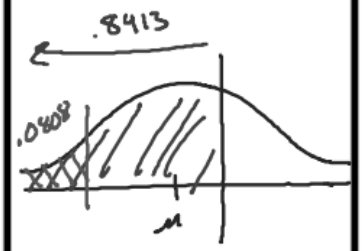
$z = \frac{74-68.5}{2.7} = 2.04$ .9793

97.93 Percentile

b. Jackie is 62 inches tall. What is her percentile for height?

$z = \frac{62-66.5}{2.5} = -1.40$ .0808

8.08 th percentile



c. Abby is 5 feet 8 inches tall. What percentage of young women are between Jackie (Part b) and Abby in height?

$z = \frac{68-65.5}{2.5} = 1$ .8413

$.8413 - .0808 = .7605$

d. Gabriel is at the 90th percentile in height. What is his height?

$z = \frac{x-\mu}{\sigma}$ $2.7(1.28) = \frac{x-68.5}{2.7}2.7$

$3.456 = x - 68.5$

71.956"

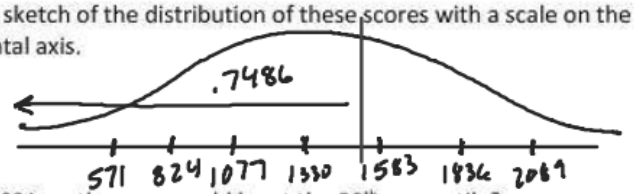
e. Yvette is at the 31st percentile in height. What is her height?

$(2.5)(-.5) = \frac{x-65.5}{2.5}2.5$ $X = 64.25"$

$-1.25 = X - 65.5$

3. All 11th-grade students in Pennsylvania are tested in reading and math on the Pennsylvania System of School Assessment (PSSA). The mean score on the PSSA math test in 2006-2007 was 1,330 with standard deviation 253. You may assume the distribution of scores is approximately normal. (Source: www.pde.state.pa.us/a_and_t/cwp/ view.asp?A=3&Q=129181)

a. Draw a sketch of the distribution of these scores with a scale on the horizontal axis.



b. What PSSA math score would be at the 50th percentile?

1330

c. What percentage of 11th graders scored above 1,500?

$z = \frac{1500 - 1330}{253} = .67$

1 − .7486

.2514

d. Javier's PSSA score was at the 76th percentile. What was his score on the test?

$253(.71) = \left(\frac{x - 1330}{253}\right)253$

$179.63 = x - 1330$

$+1330.00 \quad +1330$

1509.63