SOC510 Homework #3 Solution

Chapter 3.

3.2 (p.69);
(a) The density curve forms a 1 × 1 square, which has area 1.
(b) 20% (the region is a rectangle with height 1 and base width 0.2; hence the area is 0.2).
(c) 60% (a 1 × 0.6 rectangle).
(d) 50% (a 1 × 0.5 rectangle).

3.4 (p.69);
(a) Mean is C, median is B (the right skew pulls the mean to the right).
(b) Mean B, median B (this distribution is symmetric).
(c) Mean A, median B (the left skew pulls the mean to the left).

3.6 (p.74);
(a) 64 ± 2(2.7) = 58.6 to 69.4 inches.
(b) 84% (50% plus half of 68%).

3.8 (p.75);
z for Eleanor is 1.42 (=[680-518]/114) and z for Gerald is 1.26 (=[27-20.7]/5)

3.10 (p.80);
(a) .9978; (b) .0022; (c) .9515; (d) .9493

3.12 (p.81)
(a) $P(x > .40) = P(z > \frac{.40-.41}{.02}) = P(z > -.5) = .6915$
(b) $P(.40 < x < .50) = P(-.5 < z < 4.5) = .6915$

3.27 (p.85);
(a) 50%; (b) .15%; (c) 16%

3.32 (p.86);
z for Tonya=(1318-1026)/209=1.40; z for Jermaine=(27-20.9)/4.8=1.27, thus Tonya's score is higher.

3.34 (p.87);
Josó's score standardizes to z = (1287-1026)/209 = 1.25, so an equivalent ACT score is 20.9 + 1.25 × 4.8 = 26.9.

3.36 (p.87);
Tonya's score standardizes to z = (1318-1026)/209=1.40; this is about the 92nd percentile.

3.44 (p.87);
About 2.5% of young women are taller than the mean height of young men, because 69.3 inches corresponds to a standard score (on the women's scale) of z = (69.3-64)/2.7 = 19.6, which yields 0.0250 in Table A.

3.46 (p.87);
(a) Among men, a score of 750 corresponds to standard score z = (750-537)/116= 1.84, so about 3.29% score 750 or more.
(b) Among women, a score of 750 corresponds to standard score z = (750-501)/110= 2.26, so about 1.19% score 750 or more.