Stat 2 Fall 2010: Midterm Review Answers S.M. Stoyanov

1. (a) Experiment
   (b) Study
   (c) Experiment
   (d) Study
   (e) Study
2. (a) (ii) There is no spread.
   (b) (iii) If the square root of a non-negative number is 0, the number must be 0.
3. (a) Drawn in class. The vertical scale will have %/mg, and the horizontal axis has mg.
   (b) The median = 160mg.
   (c) Average $<$ 160 mg (long left tail)
4. 90th percentile = 67.48 inches (average = 64 inches, SD = 2.68 inches)
5. (a) Yes, it is unchanged.
   (b) 1 (they lie on a straight line).
6. 2.81 ($= 2.6 + 0.46 \cdot 0.75 \cdot 0.6$)
7. (iii) The regression estimate will be **less than** 1.5 SDs above average.
8. Math. The math z-score is 1.5, and the French z-score is 1.25.
9. (a) True
   (b) False
   (c) False
   (d) True
   (e) True
10. 1 year.
11. Not from this! Association is not causation.
12. (a) (i)
    (b) (iii)
    (c) (vi)
13. 5% . One way of thinking about it is to see what is the probability of pulling out the sequence 1,2,3: $\frac{1}{6} \cdot \frac{1}{5} \cdot \frac{1}{4}$. But there are 6 such sequences that will leave 4, 5, and 6 in the box. So the probability is obtained by adding them all.
14. $\frac{3}{5}$. $P(\texttt{Gold}) = P(G\&A) + P(G\&B) = P(G|A)P(A) + P(G|B)P(B) = \frac{2}{5} \cdot \frac{1}{2} + \frac{4}{5} \cdot \frac{1}{2}$.