Math 282 HW 5 due Friday, Sept. 27. Quiz 4 Wed. Sept. 25 covers regression and drawing a sample (SRS) using a random number table. Also bad samples: voluntary response sample and convenience sample. Also larger probability samples are more accurate. **Two pages: problems A)- F)** 

A) 10.2abc Probability is a measure of how likely an event is to occur. Match one of the probabilities listed below with each of the following statements. 0 0.01 0.3 0.6 0.99 1.0
a) The event is impossible. It will never occur.

b) The event is certain. It will occur in every trial.

c) This event is very unlikely, but it will occur once in a while in a long sequence of trials.

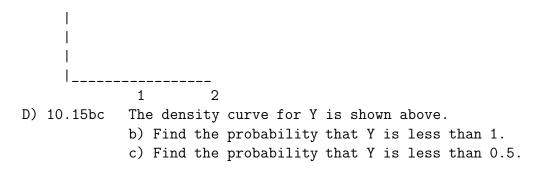
comment: See p. 262-264. 0 means it will never happen, 1 means it will always happen.

B) 10.31b For the following situation, describe the sample space S for the random phenomenon. A basketball player shoots four free throws. You record the number of baskets she makes.

comment: See p. 266 and ex 10.5 on p. 267.

C) What happens to trees over a five year period? A study lasting more than 30 years found these probabilities for a randomly chosen 12-inch diameter tree in the Missouri Ozarks. stay in the 12-inch class: 0.686 move to the 14 inch class: 0.256 The remaining trees die in the five year period. What is the probability that a tree dies?

comment: See the box on p. 271 and ex 10.7.



comment: Area of triangle = 0.5(base)(height). Note that 0.5 is halfway to the peak, so the height of the triangle of interest is half the total height.

E) Suppose two die are tossed and X = sum of the two die.

i) Make a table that shows the sums as shown below.

|     | 2nd |   | 1      | 2 | 3 | 4 | 5 | 6  |
|-----|-----|---|--------|---|---|---|---|----|
| 1st |     |   | 2<br>3 |   | 4 | 5 | 6 | 7  |
|     | 3   |   | 4      |   |   |   |   |    |
|     | 4   | Ι | 5      |   |   |   |   |    |
|     | 5   | Ι | 6      |   |   |   |   |    |
|     | 6   | Ι | 7      |   |   |   |   | 12 |
|     |     |   |        |   |   |   |   |    |

ii) Then list the X values and their probabilities. List the probabilities as integers/36, eg X 2 3 .... 12 prob 1/36 2/36 .... 1/36

comment: see p. 267-268

F) Voter registration records show that 68% of all voters in Indianapolis are registered as Republicans. To test a random digit dialing device, you use a device to call 150 randomly chosen residential telephones in Indianapolis. Of the registered voters contacted, 73% are registered as Republicans.

i) Is 68% a parameter or a statistic?

ii) Is 73% a parameter or a statistic?

comment: Looking for "parameter" or "statistic", not "yes." See p. 292.