

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.



- D) 10.15bc The density curve for Y is shown above.
- b) Find the probability that Y is less than 1.
 - c) Find the probability that Y is less than 0.5.

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 $X = \text{sum of the two die}$.

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

	2nd	1	2	3	4	5	6
1st	1	2	3	4	5	6	7
	2	3	4				
	3	4					
	4	5					
	5	6					
	6	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.