AP Statistics **Name:**

Special Problem 5

Directions: Show all your work. Indicate the methods you use, because you will be graded on the correctness of your methods as well as on the accuracy and completeness of your results and explanations.

Problem: Suppose a college professor has 30 students in her class. There are 22 females and 8 males. At the start of class on the professor routinely goes over the homework from the previous class. Unbeknownst to the professor, only 4 of the males and 8 of the females have completed the homework assignment. The professor chooses students at random to explain homework problems.

(a) What is the probability that a randomly selected student has in fact completed the homework assignment?

(b) Are the events "choosing a female" and "choosing a student who completed the homework" independent of each other? Justify your answer.

The professor randomly selects 5 students to explain homework problems.

(c) Describe how to use a table of random digits to estimate the probability that 2 or fewer of the 5 randomly selected students completed the assignment.

(d) Complete **three** repetitions of your simulation starting with line 102 in the table of random digits below and use the results to estimate the probability described in part (c).

TABLE B Random digits

LINE								
101	19223	95034	05756	28713	96409	12531	42544	82853
102	73676	47150	99400	01927	27754	42648	82425	36290
103	45467	71709	77558	00095	32863	29485	82226	90056
104	52711	38889	93074	60227	40011	85848	48767	52573
105	95592	94007	69971	91481	60779	53791	17297	59335
106	68417	35013	15529	72765	85089	57067	50211	47487
107	82739	57890	20807	47511	81676	55300	94383	14893