ASSESSMENT MACRO A

1. One marble is randomly drawn, and then NOT REPLACED, from a jar containing two white marbles and one black marble. A second marble is drawn. What is the probability of drawing a white one and then a black one?

   A. $\frac{1}{3}$ B. $\frac{2}{9}$ C. $\frac{3}{8}$ D. $\frac{1}{6}$

2. From a club of 21 students, 12 girls and 9 boys, two students will be randomly selected to serve as president and vice president. What is the probability that two girls will be selected?

   A. $\frac{1}{4}$ B. $\frac{9}{35}$ C. $\frac{11}{35}$ D. $\frac{4}{7}$

3. In rolling two dice, the probability of obtaining a sum of 12 (the largest possible sum) is $\frac{1}{36}$. What is the probability of obtaining the largest possible sum when you roll five dice?

   A. $\frac{5}{36}$ B. $\frac{1}{1,296}$ C. $\frac{1}{216}$ D. $\frac{1}{7,776}$

4. Assume that there is an equal probability that a baby will be born on a given day of the week and that there is also an equal probability that a baby will be either male or female. What is the probability that a baby will be a male born ~~on~~ a Sunday?

   A. $\frac{1}{49}$ B. $\frac{1}{14}$ C. $\frac{1}{7}$ D. $\frac{1}{2}$

5. The Smith family plans to have three children. Assume that male children and female children are equally likely. What is the probability that the oldest child will be a girl?

   A. $\frac{1}{3}$ B. $\frac{1}{8}$ C. $\frac{1}{2}$ D. $\frac{3}{8}$

6. In how many ways can seven different books be arranged on a bookshelf?

   A. 7^2 B. 7! C. $7\frac{1}{2}$ D. 7^7

7. License plates are assigned three-digit numbers followed by a group of three letters. Zero is not allowed to be the first digit in the number, and Q, X, O, P, Z, D are not allowed to be the first letter in the letter group. Repeats of digits and letters are allowed. How many different license plates are possible?

   A. 5,832,000 B. 8,424,000
   C. 12,168,000 D. 17,576,000

8. Mel's success record in achieving basketball free throws is 60%. With no time left on the clock, Mel's team is losing by 1 point, and Mel has a free throw in a 1-and-1 situation (that is, if Mel makes the first free throw, he is given another free throw). What is the probability that Mel's team will win the game?

   A. 24% B. 36% C. 40% D. 60%

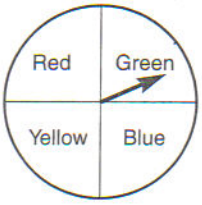
9. Which of the following pairs of probabilities would NOT represent complementary events?

   A. $\frac{1}{5}$ and $\frac{4}{5}$ B. $\frac{1}{2}$ and $\frac{1}{2}$
   C. .01 and .9 D. .01 and .99

10. Dimitri is asked to find the probability that a die will show an even number or a number greater than 1 on a single roll of the die. He adds the individual probabilities and comes up with a probability of $\frac{8}{6}$. Explain why this result is NOT reasonable.

11. The digits 2, 3, 4 are used to form three-digit whole numbers, without any repetition of digits. What is the probability that a randomly selected number, from among all those generated by the above, is NOT an even number?

12. For the spinner shown, the probability of landing on each color is 25% or $\frac{1}{4}$.



Draw a spinner so that the probabilities (P) would be as follows:

P(Red) = .5
P(Yellow) = .25
P(Orange) = .2
P(Brown) = .05

13. Find the value of $\frac{7 \times 6!}{7!}$.

14. If the probability of an event E is $\frac{2}{17}$, what are the odds against E happening?

15. An ice cream store has 8 flavors of ice cream and the following toppings: whipped cream, chocolate sauce, nuts, and marshmallow. A junior ice cream sundae consists of one scoop of ice cream and one or more toppings. How many junior sundaes are possible?

16. A box contains 15 marbles: 6 green, 4 red, and 5 blue. Name a compound event that would have a probability of $\frac{4}{15} \times \frac{3}{14} \times \frac{2}{13}$.

17. Three dice are rolled. Obtaining a sum of 3 is not very likely. What other sum would have the same probability as a sum of 3?

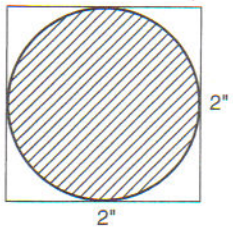
18. Suppose a dress code survey that included 200 men and 200 women had results as indicated in the table.

	For Stronger Dress Code	Against Stronger Dress Code	Total
Men	80	120	200
Women	110	90	200
Total	190	210	400

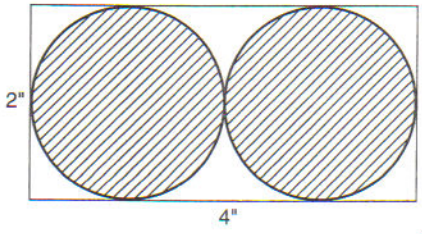
Find the probability that a person chosen at random, from among the 400 people, is a male against a stronger dress code.

OPEN-ENDED QUESTIONS

19. a. Find the probability that an object landing randomly on the figure will land in the shaded circle. Express the probability as a percent.



b. Would the probability change if we used this double diagram? Explain your answer.



20. In a family of three children there are 8 possibilities for the boy-girl combinations, such as BBG, GBG, etc.

a. The probability of all boys equals the probability of all girls. What would each of these be?

b. The probability of 2 boys and 1 girl is equal to $\frac{3}{8}$. Explain why it is $\frac{3}{8}$ and not $\frac{1}{8}$.

c. For this family of three children, what other situation would have a probability equal to $\frac{3}{8}$?

d. If the family had four children, how would the answer to part a change?