PRACTICE EXERCISES

1. In a pet shop, there are 8 puppies and 6 kittens. 3 puppies and 2 kittens will be neutered. In how many ways can the 5 animals be selected?
A. 2002   B. 71   C. 840   D. 2400

2. 5 women and 4 men are trying out for the cheerleading team. If 2 women and 2 men will be selected, how many different 4-person groups are possible?
A. 16   B. 60   C. 18   D. 80

3. A couple is expecting a baby. They don't yet know whether the child will be a boy, or a girl. They will name the child by choosing a first name and middle name from either of these two lists, depending upon the sex of the baby:
girls' names: Sally, Sue, Sara, Stephanie
boys' names: Josh, Jacob, Jonah, Jeremiah, John.
The child's first name will be different from the middle name. How many possible names are there?
A. 240   B. 400   C. 41   D. 32

4. Carmen's Carry-Out offers two different menus to her customers: A customer may choose a 3-course meal from either the Spanish Menu or the Oriental Menu, but the two menus may not be mixed. The Spanish menu consists of 3 different appetizers, 4 different entrees, and 2 different desserts. The Oriental menu consists of 2 different appetizers, 3 different entrees, and 3 different desserts. How many different 3-course meals are possible?
A. 432   B. 42   C. 864   D. 84

5. Referring to #5, how many different 3-course meals are possible if the two menus may be combined?
A. 175   B. 1296   C. 72   D. 17

6. A survey of 100 Leon County voters, following the November, 2000 elections, revealed the following data: 38 voted for Bush for President, 28 voted for McCollum for U.S. Senator, and 25 voted for both Bush for President and McColluumfor Senator. How many of those surveyed voted for at least one of the two candidates mentioned above?
A. 66   B. 63   C. 41   D. 91

7. Piggo's Pizza is offering a special deal: for $5 you get a large pizza with up to 4 toppings. The toppings available are: sardines, Spam, Hershey's Kisses, corn, peanuts, pickles. No topping may be repeated on a single pizza. How many different topping combinations are possible?
A. 10   B. 64   C. 57   D. 36

8. In #6 above, how many didn't vote for Bush?
A. 10   B. 72   C. 75   D. 62

9. A pet shop has 8 puppies and 6 kittens. Either 2 puppies or 3 kittens will be donated to the Mary Kay Cosmetics Product Testing Labs. In how many ways can the selection be made?
 A. 112   B. 8064   C. 48   D. 560

10. In a jail cell, there are 8 Democrats and 6 Republicans. Either 4 Democrats or 4 Republicans will be selected to go out and pick up trash along the highway. How many different 4-person groups are possible?
A. 1050   B. 85   C. 102   D. 1001

11. How many subsets are in a 12-element set? (Note: this is a question that you could have answered prior to Test 1.)
A. 24   B. 144   C. 4096   D. 66

12. A basketball team has a home uniform and an away uniform. For the home uniform, there is a choice of 3 different jerseys, 4 styles of trunks, 2 styles of shoes, and 2 styles of stockings. For the away uniform, there is a choice of 2 styles of jersey, 2 styles of trunks, 1 style of shoe, and 2 styles of stockings. All items in the home uniform are different from those in the away uniform, and items from the two uniforms may not be mixed. How many different uniform configurations are possible?
A. 384   B. 288   C. 54   D. 56

13. On a certain day, 20 customers purchased Burley Cigarettes from Moe's QuikShop. Of the 20, 14 were bikers, 16 had tattoos, and 12 were bikers with tattoos. How many were neither bikers, nor tattooed?
A. 18   B. 10   C. 2   D. 4

14. Refer to the situation in #7 above. How many different 3-topping combinations are possible?
A. 24   B. 20   C. 12   D. 60

15. A new health-food-trash-food emporium, I Definitely Believe It's Tofu, has opened next to Publix. Their specialty is the frozen tofu cone, with toppings. There are five toppings from which to choose: carob chips, granola, prunes, sunflower seeds, or (of course) seaweed sprinkles. A customer may order a cone with any combination of toppings (or no toppings at all: *au naturel*). How many different possibilities are there?
A. 10   B. 120   C. 32   D. 25

16. Refer to the situation in #15 above. How many different topping combinations are possible if at least 2 toppings will be chosen?
A. 6   B. 18   C. 26   D. 14

17. A wrestling promoter needs to select 2 wrestlers to fight in the main event for Wrestlepalooza III. The main event will involve one of these two themes: Masked Mayhem (featuring two masked wrestlers), or Whiskered Warfare (featuring two bearded wrestlers). The promoter has eight masked wrestlers and seven bearded wrestlers from whom to choose. In how many ways may he form a match for the main event?
A. 98   B. 49   C. 14   D. 588

18. Ships of the navy of the Democratic People's Republic of North Tyrania communicate at sea, using flags to transmit coded messages according to the following scheme: each ship has a set of 6 flags (the same six flags are on each ship). A code message is formed by choosing some combination of the flags, and hanging them from the mainmast. A code message is determined entirely by the flags chosen, and <u>not</u> by the order in which they are arranged. Thus, a code message could involve no flags at all ("we are unable to come to the mast at this time; please leave your message at the beep") or it could involve 1, 2, 3, 4 or 5 flags, or it could involve all 6 flags ("if it's my wife, I ain't here"). How many different messages are possible?
A. 720   B. 120   C. 64   D. 36

19. In #10 above, 4 Democrats <u>and</u> 4 Republicans will be selected. How many different 8-person groups are possible?
A. 1050   B. 85   C. 102   D. 1001

20. For his birthday, Gomer is going to invite some friends to a party at Chuck E. Cheese's. He has compiled a list of 10 of his closest friends, but he can only afford to invite 6 of them. If he randomly chooses 6 friends from the list of 10, how many different 6-person collections are possible?
A. 60   B. 5040   C. 210   D. 1,000,000

21. The board of directors of a lobbying group consists of 6 men and 5 women. Two men and two women will be chosen to attend a conference in Sopchoppy. How many different 4-person groups are possible?
A. 330   B. 150   C. 25   D. 600

22. Gomer is shopping for a cat. He wants a cat that possesses **at least three** of the following traits: I. Has aloof personality; II. Has rodent breath; III. Has stripes; IV. Purrs when happy; V. Twitches tail when angry. Assuming that a combination of traits includes at least three of the traits, how many combinations of traits are possible?
A. 16   B. 10   C. 20   D. 32

23. There are 6 Democrats and 6 Republicans on the local zoning commision. They are going to randomly choose a chairperson and treasurer from among themselves, subject to the following agreements: both officeholders will belong to the same party, and no person will hold more than one position. How many different outcomes are possible?
A. 132   B. 900   C. 30   D. 60

24. Select the answer that correctly completes the sentence.
P(14, 10) =
A. 24,024
B. the number of ways to choose 10 people from a group of 14 and assign them into 10 empty seats.
C. the number of 10-element subsets in a 14-element set.
D. the number of ten-letter passwords that can be formed using letters chosen from the set S = {a,b,c,d,e,f,g,h,i,j,k,l,m,n}, if repeated letters are allowed.

25. In how many different ways is it possible to choose a Chairperson, Associate Chairperson, and Parliamentarian from a list of 7 candidates, assuming that no candidate can hold more than one position?
A. 210   B. 343   C. 16   D. 35

26. The Egotists' Club consists of 6 men and 7 women. They will send either 2 men or 2 women to the national Egotists' convention. How many different 2-person groups are possible?
A. 42   B. 315   C. 72   D. 36

ANSWERS TO PRACTICE EXERCISES

1. C	**2.** B	**3.** D	**4.** B	**5.** A	**6.** C
7. C	**8.** D	**9.** C	**10.** B	**11.** C	**12.** D
13. C	**14.** B	**15.** C	**16.** C	**17.** B	**18.** C
19. A	**20.** C	**21.** B	**22.** A	**23.** D	**24.** B
25. A	**26.** D				