

Combinations Practice

- 1) How many different 4-element subsets can be formed from the set $\{a, b, c, d, e, f, g\}$?
35
- 2) How many different 7-element subsets can be formed from the set $\{1, 2, 3, 4, 5, 6, 7, 8, 9\}$?
36
- 3) How many different committees of 3 can be chosen from 12 people?
220
- 4) How many different teams of 9 can be chosen from 12 students?
220
- 5) How many different 3-card hands can be chosen from a 52 card deck?
22,100
- 6) How many different sets of 4 books can be chosen from a shelf on which there are 24 books?
10,626
- 7) There are 14 different pens in a carton. How many different sets of 11 can be chosen?
364
- 8) A box contains 10 different fishing hooks. How many different sets of 6 hooks can be chosen?
210
- 9) How many lines are determined by 8 points, no 3 of which are collinear?
28
- 10) How many different diagonals can be drawn in a seven-sided polygon?
14
- 11) Nine students are eligible to play doubles tennis. How many different 2-person teams can be chosen?
36
- 12) A box contains 7 flashlights, all of different colors. How many different sets of 3 flashlights can be chosen?
35
- 13) In a lottery, 4 winners will get equal prizes. If 20 people enter the lottery, how many different groups of 4 winners can be chosen?
4,845

14) There are 7 men and 6 women in a club. How many different 3-member committees can be chosen so that all are women? So that all are men?

20 and 35

15) There are 10 soccer players and 8 volleyball players in a room. How many different groups of 2 players can be chosen so that there are no soccer players in the group? So that there are no volleyball players in the group?

28 and 45

16) A club has 8 executive board members and 15 general members. How many committees of 3 can be chosen so that only executive board members are included? So that executive board members are excluded?

56 and 455

17) How many 5-card hands that contain exactly 2 aces and 3 kings can be chosen from a 52-card deck? (there are 4 aces and 4 kings in a deck)

24

18) How many 5-card hands that contain exactly 3 red and 2 black cards can be chosen from a 52-card deck? (remember half the cards in the deck are red and half are black)

845,000

19) A wallet contains a nickel, a dime, a penny and a quarter. How many different sums of money can be made from the change in the wallet?

15

20) A wallet contains a \$1 bill, \$5 bill, and two \$10 bills. How many different sums of money can be made if each sum can contain only one of each type of bill?

7

21) How many different sets of 6 balls can you choose from a box containing only 7 gloves and 3 bats?

0

22) A plane contains 5 collinear points. How many triangles can be drawn using any three of these points as vertices?

0

23) A team manager has 11 students who are qualified to play basketball. How many different 5-person teams can be chosen?

462

24) Six horses are needed to pull a float in a parade. If there are 10 horses in the stable, how many different teams of 6 can be selected?

210