

SM2 HW #8-7 (permutations, combinations)

Date _____ Period _____

- 1) Evaluate the expression:
 ${}_{13}C_{13}$
 - 2) Evaluate the expression:
 ${}_6P_0$
 - 3) List all the possible permutations of A, B, C, D, taken two at a time
 - 4) How many ways can the letters S-T-E-A-M be written in order?
 - 5) How many ways are there to arrange 6 letters (A, B, C, D, E, and F) in order without replacement?
 - 6) How many ways are there for 10 people to line up in a line?
 - 7) a) Convert to vertex form:
b) Find the zeroes of the equation:
 $y = x^2 - 8x + 9$
 - 8) State the multiplication principle of counting in your own words (complete sentence please).
 - 9) How many different 1st, 2nd, and 3rd place finishers are possible for a race with 20 people in it?
 - 10) How many different license plates are possible if the license plates have 4 digits followed by 3 letters? (you may NOT use replacement).
 - 11) simplify:
 $(2x + 4)^2$
 - 12) Solve by factoring:
 $k^2 - 10k + 21 = 0$
- a) State if each scenario involves a permutation or a combination**
b) Find the number of possibilities.
- 13) There are 10 applicants for four jobs (assume the first position is filled by the top applicant, etc.)
Computer Programmer, Software Tester, Manager, and Systems Engineer.
 - 14) A group of 45 people are going to run a race. The top three runners earn gold, silver, and bronze medals.

15) A team of 10 dodgeball players needs to choose a captain and co-captain.

16) A team of 12 dodgeball players needs to choose two players to refill the water cooler.

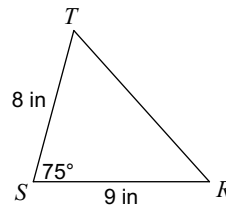
17) A group of 35 people are going to run a race. The top 10 finishers advance to the finals.

18) The batting order for eight players on a 11 person team.

19) There are 30 applicants for two Manager positions.

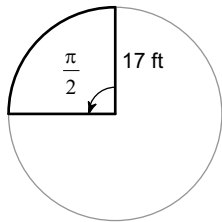
Find the area of each triangle to the nearest tenth.

20)

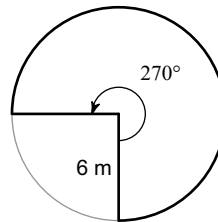


Find the area of each sector.

21)

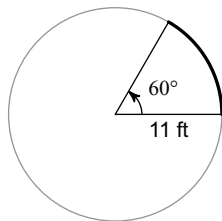


22)



Find the length of each arc.

23)



24)

