

Timed Expectations



**Each Team needs to connect 4 calculators to the Hub using the cables near the door.
Log into TI Navigator and do Warm Up**

Have Assignment out to go over

In your journal, create a Frayer Model for Permutations

1. A bag contains 24 balls. Five of the balls are red, four are green, seven are blue, and eight are yellow. What is the probability that a ball picked at random will be

(a) red?

(b) green?

(c) blue?

(d) yellow?

2. If you select a letter at random from the alphabet, what is the probability that it will be a consonant?

3. If a number is selected at random from the set of numbers 1, 3, 17, 25, 71, what is the probability that the number is

(a) an odd digit?

(b) an even digit?

(c) divisible by 3?

(d) a prime number?

(e) a composite number?

4. Four marbles are drawn at random from a bag containing five orange marbles and seven brown marbles. What is the probability that

(a) all four marbles are orange?

(b) all four marbles are brown?

5. In Hillcross High School there are 300 freshmen, 280 sophomores, 275 juniors, and 256 seniors. What is the probability that a student selected at random will be

(a) a freshman?

(b) a sophomore?

(c) a junior?

(d) a senior?

6. In how many ways can the offices of president, secretary and treasurer be filled from a group of nine people?

7. In how many ways can five girls be arranged in a straight line?

8. A theater has five entrances. In how many ways can you enter and leave by a different entrance?

9. How many different permutations can be made using all the letters of the word dinner?

10. How many distinct permutations can be made using all the letters of the word

(a) challenge

(b) banana

(c) staff

(d) tuition

(e) assassination

(f) committee?

Combinations

order of the objects in the arrangement
does not matter

n objects taken r at a time

$${}_n C_r = \frac{n!}{(n-r)! r!}$$



Examples

1. In how many ways can a committee of four be chosen from ten people?

2. How many combinations can be made from seven objects, using them five at a time?

3. Evaluate ${}_{60}C_{57}$.

4. Evaluate ${}_{21}C_{17}$.

5. There are 3 freshmen, 2 sophomores, 4 juniors, and 4 seniors to choose from to form a committee. How many ways can someone choose 2 from each class for the committee?

Combination of P and C

1. At a ceremony, 9 dogs and 6 cats are available for a news photo. The photographer chooses 3 animals at random. What is the probability that 2 dogs and 1 cat will be chosen?

2. From a standard deck of cards, you draw 1 ace and put it aside. Then you draw another card. What is the probability that the first card is an ace and the second card is a king?

**Assignment
Probability Assignment #3
(Handout)**