Exploring the World of Math

Name: _____ Date: _____

Combinations and Permutations

1. There are 20 people who work in an office together. Four of these people are selected to go to the same conference together. How many such selections are possible?

2. There are thirty three people who work together. We have four special projects, called A, B, C and D. We can assign a single person to each project. How many combinations can we have?

3. Our test tubes in the lab have enough room to write three characters which could be letters A through Z or numbers 0 through 9. How many combinations can we have if we do not repeat a letter?

4. Our test tubes in the lab have enough room to write three characters which could be letters A through Z or numbers 0 through 9. How many combinations can we have if we can repeat a letter?

5. The customer folders in the office have enough room to write two characters which could be letters A through Z followed by four numbers 0 through 9. An example is AB1020. How many combinations can we have if we can repeat a letter or number?

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Tree Diagrams

6. Create a diagram showing the combinations of red and green lights in a row when going by three equally timed lights.

7. What is the probability of having all green lights?

8. What is the probability of having all red?

9. What is the probability of having just two reds?

10. Create a diagram showing the combinations of offspring from a woman having three children.

11. What is the probability of having all males?

12. What is the probability of having just two females?

13. What is the probability of having only one male?

Sampling

14. We tagged 92 cows in the forest in June. We counted 13 tagged cows out of 247 this Wednesday at a creek crossing. What is the estimated number of cows on the ranch?