Grade 7/8 Math **Probability (simple introduction quiz)**

Name: _____ Class: _____ Date: _____

The following is a Math Pre-assessment to see how much you know about probability. The mark you get will not be on your report card. It is just to see what you know and what you need to learn for this year. Just do your best to answer all questions as well as possible. 😊

1. You know that a family has three children but you do not know their born gender or the order of their births.

    a) How many equally likely possibilities are there for the sexes and birth orders? 8

    b) What is the probability that the family consists of three girls? 1/8 (12.5%)

    c) What is the probability that the family consists of at least one boy? 7/8 (87.5%)

    d) If a family had four sons and were expecting a fifth child what is the probability it will be a boy? ½ (50%)

2. A restaurant offers select your own sandwiches. That is, a person may **select one** item **from each of the categories listed**.
Bread – white, wheat, brown **Filling** – tuna, chicken **Vegetables –** lettuce, tomato

    a) List all the possible outcomes. (12 – Use tree diagram or organized list to show

    b) Do you think the choices of sandwich made by customers would be chosen equally?'

    (answers will vary – 'No, some people do not like fish and some people are vegan.')

    c) What is the probability of choosing a tuna and lettuce sandwich on white bread if it is chosen randomly? 1/12 (8.3%) So, in probability, we have to state random since people's preferences mess with predictions. We would have to do market research to find preferences.

3. Make up a probability word problem where the answer is $\frac{5}{8}$.

    Answers will vary – ' What is the probability that you will choose a red ball out of a bag of 16 ball if only 10 are red?

4. Jar A contains two white marbles and eight black marbles.

    a. a marble is removed from jar A and put back in the jar. Then a marble is removed again. What is the probability that both marbles removed will be white? 2/10 x 2/10 (.2 x .2 = .04) (4%) These are independent events and the probability of compound independent events is the product of the probabilities or each event.

    b. A marble is removed from jar A and kept. Then another marble is removed. What is the probability that both marbles removed will be white?
    These are Dependent events which means that the chances of the second event is dependent on the first so the probabilities change. The compound dependent event is still the product of the probability of the events happening but the second probability is now 1/9 ∴ 2/10 x 1/9 = 2/90 or .022222 or 2.2%.

5. A bag contains 10 red and 10 blue bingo chips. Two chips are removed from the bag.

a. Suppose the first is not replaced before the second is chosen. What is the probability of removing two red chips?
Dependent events ∴ 10/20 x 9/19 = 90/380 (0.237 = 23.7%)

b. Suppose the first is not replaced before the second is chosen. What is the probability of removing a red, then a blue chip?
Dependent events ∴ 10/20 x 10/19 = 100/380 (0.263 = 26.3%)

c. Suppose the first is replaced before the second is chosen. What is the probability of removing two red chips?
Independent events ∴ 10/20 x 10/20 = 100/400 (0.25 = 25%)

6. Make up a probability question that you need to draw a tree diagram to answer. Construct the tree diagram and show your solution to the problem you made.

Answers will vary but must have a Tree Diagram and a question (and solution)

Multiple Choice

1. If the weather forecast calls for a 60% chance of rain on Saturday, it means that
   a) It will rain on 60% of the day
   b) 60 ml of rain will fall that day
   c) There is a better than half chance that it will rain on that day
   d) There is only a very small chance that it will rain that day

2. If a bag contains 100 red cubes, 50 blue cubes, 25 yellow cubes and 25 green cubes, what is the probability of Alicia choosing a blue cube?
   a) 1 out of 50
   b) 25%
   c) 50 out of 100
   d) 1 out of 2

3. Which table of results best represents the results expected from the spinner below.

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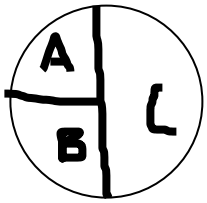
a) A 12 B 13 C 25 b) A 18 B 19 C 19

c) A 20 B 20 C 20 d) A 30 B40 C 30



4. Which statement best fits the outcomes when you roll two dice and find the product.
   a. There are 12 possible outcomes.
   b. Half of the outcomes are odd.
   c. There are 36 even outcomes.
   d. The probability of getting an even answer is greater.

5. What is the probability that the spinner will land on D?

a) 1/3 b) ¼ c) 1/5 d) 1/6

6. Decide which of the following events (A and B) are dependent. Circle the pair if they are dependent.

a. A. Mrs. Brown's first child was a boy.
   B. Mrs. Brown's second child will be a boy.

b. A. Leif swam 2 hours every day for the last ten months.
   B. Leif 's swimming times have improved.

c. A. Allison got an A in her last math test.
   B. Allison will get an A in her next math test.

d. A. Matthew got a head in his last coin toss.
   B. Matthew will get a head in his next coin toss.

7. What do you know about lotteries and gambling?

Answers will vary – slim odds

8. List anything that you know about probability that you remember or know from other years. Point form is OK. Continue on the back if you need more room.
Answers will vary but should be more than before we did the remembering activity.