

Name _____

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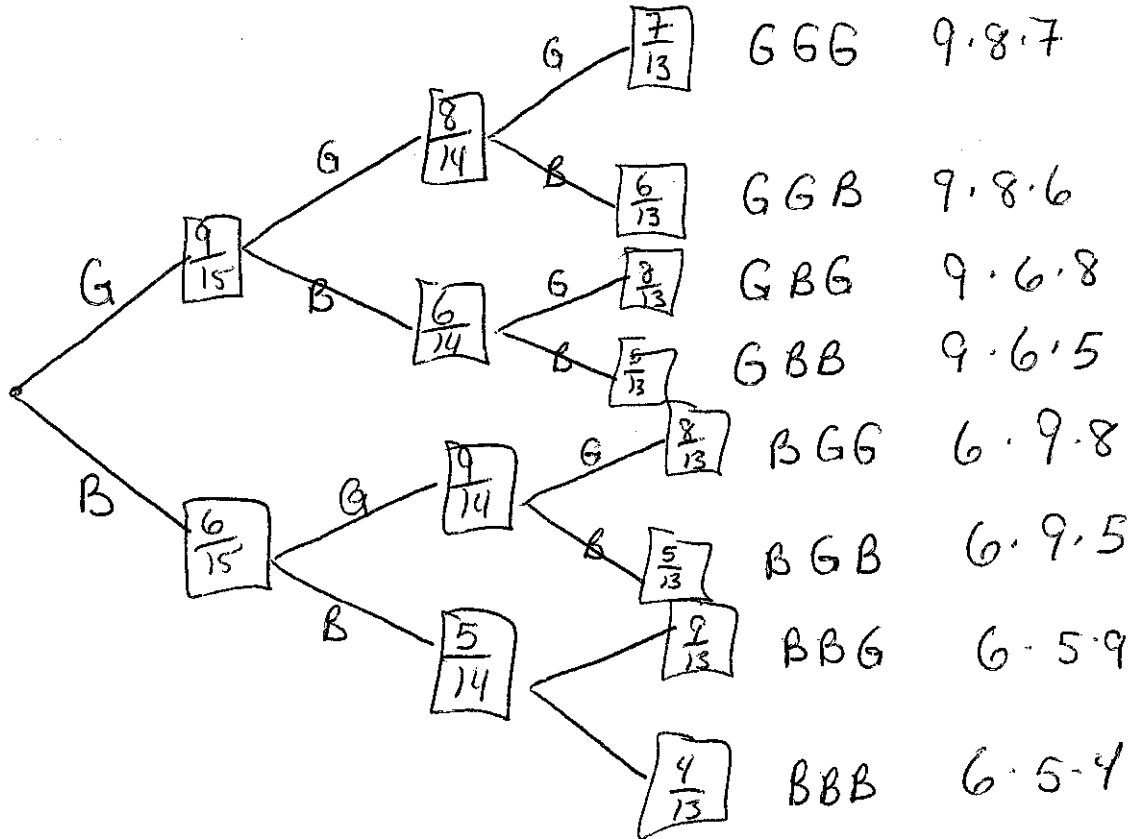
Advanced Algebra

Unit 7 Probability Assignment #3

- 1) You have 9 green marbles and 6 blue marbles. You are going to select three marbles WITHOUT replacement.

Make a tree diagram to represent this scenario.

What is the probability that you select EXACTLY 2 green marbles.



$$\frac{\quad}{15 \cdot 14 \cdot 13}$$

$$3 \left(\frac{9 \cdot 8 \cdot 6}{15 \cdot 14 \cdot 13} \right) = \frac{1296}{2730} = 0.47$$

2) $\frac{{}^3C_2 \cdot {}^8P_2 \cdot {}^6P_1}{{}^{14}P_3}$

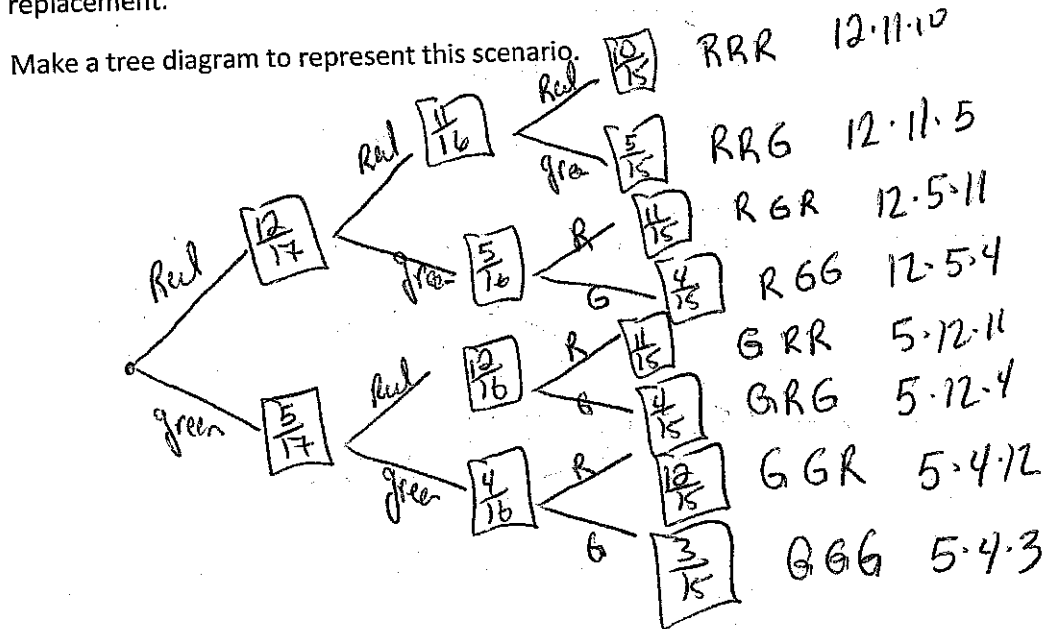
3) $\frac{{}^5C_2 \cdot {}^9P_2 \cdot {}^7P_3}{{}^{16}P_5}$

$$\frac{5!}{3!2!}$$

$$\frac{10 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5}{16 \cdot 15 \cdot 14 \cdot 13 \cdot 12} = 0.29$$

Now you try....

You have 12 red marbles and 5 green marbles. You are going to select three marbles WITHOUT replacement.



$$17 \cdot 16 \cdot 15$$

1) What is the probability of selecting all red? $\frac{12 \cdot 11 \cdot 10}{17 \cdot 16 \cdot 15}$

2) What is the probability of selecting at most 2 red? $1 - \left(\frac{12 \cdot 11 \cdot 10}{17 \cdot 16 \cdot 15} \right)$

3) What is the probability of selecting exactly 2 red? $3 \left(\frac{12 \cdot 11 \cdot 5}{17 \cdot 16 \cdot 15} \right)$

4) What is the probability of selecting exactly 1 green?

5 without Replacement

① P(All Red) $\frac{12 \cdot 11 \cdot 10 \cdot 9 \cdot 8}{17 \cdot 16 \cdot 15 \cdot 14 \cdot 13}$

② P(At Most 4 Red) $1 - \left(\frac{12 \cdot 11 \cdot 10}{17 \cdot 16} \right)$

③ P(Exactly 4 Red)