

Math 112 - Quiz 16

December 3, 2018

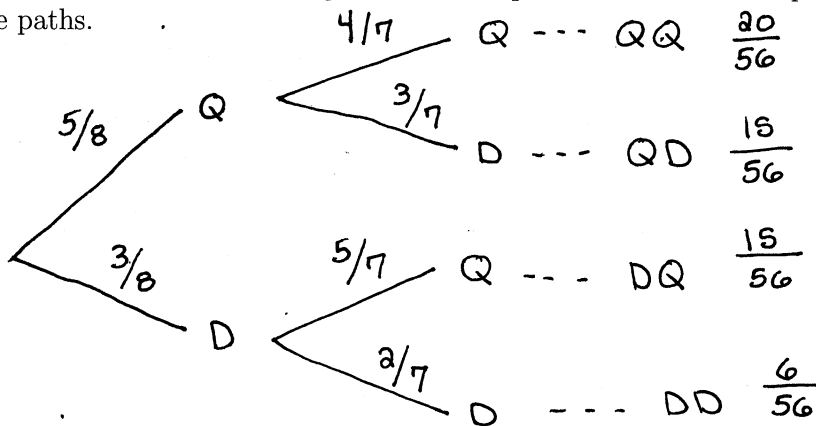
Name key

Score _____

Show all work to receive full credit. Supply explanations when necessary. This quiz is worth 5 points. YOU MUST WORK INDIVIDUALLY.

1. (3 points) A jar contains 5 quarters and 3 dimes. Two coins are selected from the jar at random without replacement.

- (a) Sketch the complete tree diagram for the experiment. Include the probabilities of the paths.



- (b) What is the probability of selecting at least one quarter?

$$\frac{20}{56} + \frac{15}{56} + \frac{15}{56} = \boxed{\frac{50}{56}}$$

2. (2 points) Four letters are selected at random from the word *MISSISSIPPI*. What is the probability that the letters spell *SIMP*, in order,

- (a) if letters are selected **without** replacement?

$$\frac{4}{11} S \xrightarrow{\frac{4}{10}} I \xrightarrow{\frac{1}{9}} M \xrightarrow{\frac{2}{8}} P \quad \frac{4}{11} * \frac{4}{10} * \frac{1}{9} * \frac{2}{8} = \boxed{\frac{32}{7920}}$$

- (b) if letters are selected **with** replacement?

$$\frac{4}{11} S \xrightarrow{\frac{4}{11}} I \xrightarrow{\frac{1}{11}} M \xrightarrow{\frac{2}{11}} P \quad \frac{4}{11} * \frac{4}{11} * \frac{1}{11} * \frac{2}{11} = \boxed{\frac{32}{14641}}$$