



AND VS. OR - HOMEWORK

- 1) Johnny has a stack of playing cards consisting of 4 diamonds, 11 hearts, 10 spades, and 7 clubs. If he selects a card at random from this stack, what is the probability that he will pick: *32 cards*

a) P(a spade OR a heart)

$$\frac{10}{32} + \frac{11}{32} = \frac{21}{32}$$

b) P(a diamond OR a spade)

$$\frac{4}{32} + \frac{10}{32} = \frac{14}{32} = \frac{7}{16}$$

c) P(a spade OR a club OR a heart)

$$\frac{10}{32} + \frac{7}{32} + \frac{11}{32} = \frac{28}{32} = \frac{7}{8}$$

- 2) You have 5 red, 4 yellow, and 3 blue M&Ms in a bowl. You randomly select one M&M, look at it, and *then replace it*. You then randomly select another M&M. *12 M&Ms*



a) What is the probability that you select one blue and then one red?

$$\frac{3}{12} \cdot \frac{5}{11} = \frac{5}{44} \text{ OR } 11.36\%$$

b) What is the probability that you select one yellow and then one blue?

$$\frac{4}{12} \cdot \frac{3}{11} = \frac{1}{11} \text{ OR } 9\%$$

c) What is the probability that you select one red, then one yellow, and then one blue?

$$\frac{5}{12} \cdot \frac{4}{11} \cdot \frac{3}{10} = \frac{1}{22} \text{ OR } 4.5\%$$

- 3) When a die is rolled three times, what is the probability that the first two rolls are even and the third roll shows a 6?

$$\frac{3}{6} \cdot \frac{3}{6} \cdot \frac{1}{6} = \frac{1}{24} \text{ OR } 4.2\%$$

- 4) When a die is rolled three times, what is the probability that the first roll is a 2, the second roll is a multiple of 3, and the third roll is odd?

$$\frac{1}{6} \cdot \frac{2}{6} \cdot \frac{3}{6} = \frac{1}{36} \text{ OR } 2.8\%$$

- 5) You have 5 quarters, 2 dimes, and 3 pennies in a wallet. Suppose two coins are to be selected at random, WITHOUT REPLACING the first one. *10 total*

a) What is the probability of picking a quarter and then a dime?

$$\frac{5}{10} \cdot \frac{2}{9} = \frac{1}{9} \text{ OR } 11.1\%$$

b) What is the probability of picking a penny and then a dime?

$$\frac{3}{10} \cdot \frac{2}{9} = \frac{1}{15} \text{ OR } 6.7\%$$

c) What is the probability of picking a quarter and then another quarter?

$$\frac{5}{10} \cdot \frac{4}{9} = \frac{2}{9} \text{ OR } 22.2\%$$