

(40pts) NAME (printed neatly): _____

(10pts) Section Number (circle correct section): 521_(9:10am) 522_(10:20am) 514_(11:30am) 525_(1:50pm)

Quiz Grade: _____

There are 4 different green balls, 5 different purple balls, 2 identical yellow balls, and 3 different red balls.

a. (5pts) How many different ways can you get a sample of 3 balls from the 14 balls with no restrictions?

$$C(14, 3) = 364$$

b. (5pts) How many ways can just the green, purple and red balls be lined up if all balls of the same color must be next to each other? (no yellow balls)

$$\begin{array}{ccccccc} \text{order colors} & & \text{order green} & & \text{order purple} & & \text{order red} \\ 3! & * & 4! & * & 5! & * & 3! \end{array} = 6 * 24 * 120 * 6 = 103680$$

c. (5pts) How many different ways can you get a sample of 3 balls from 14 balls with exactly 3 yellow?

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d. (5pts) How many ways can the 5 purple balls and 3 red balls be placed in a row if a red ball must be on one of the ends?

$$3 * 7 * 6 * 5 * 4 * 3 * 2 * 1 + 7 * 6 * 5 * 4 * 3 * 2 * 1 * 3 = 30240$$

$$\text{OR } 2 * 3 * 7 * 6 * 5 * 4 * 3 * 2 * 1 = 30240$$

e. (5pts) How many different ways can you get a sample of 3 balls from 14 balls with 1 green, 1 purple and 1 red ball?

$$C(4, 1) * C(5, 1) * C(3, 1) = 4 * 5 * 3 = 60 \quad \text{OR} \quad 4 * 5 * 3 = 60$$

