

Name:



UNIT 1.1 – FUNDAMENTAL COUNTING PRINCIPLE - HOMEWORK

- 1) Sarah goes to her local pizza parlor and orders a pizza. She can choose either a large or a medium pizza, has a choice of seven different toppings, and can have three different choices of crust. How many different pizzas could Sarah order?

$$2 \cdot 7 \cdot 3 = 42$$

- 2) Derek must choose a four-digit PIN number. Each digit can be chosen from 0 to 9. How many different possible PIN numbers can Derek choose if repeated digits are allowed?

$$\underline{10} \cdot \underline{10} \cdot \underline{10} \cdot \underline{10} = 10,000$$

- 3) How many different possible PIN numbers can Derek choose if repeated digits are NOT allowed?

$$\underline{10} \cdot \underline{9} \cdot \underline{8} \cdot \underline{7} = 5,040$$

- 4) How many different possible PIN numbers can Derek choose if repeated digits are NOT allowed and the first digit may not be zero?

$$\underline{9} \cdot \underline{9} \cdot \underline{8} \cdot \underline{7} = 4,536$$

- 5) Your favorite coffee shop offers a special discount to students on Mondays during the Monday of May. You may order a fancy coffee drink or a tea for half off. If there are 7 fancy coffee drinks and 6 special tea drinks to choose from, how many different ways can you pick your drink?

$$7 + 6 = 13$$

- 6) You need to create a 6 letter password for your Snapchat account.  
a. How many different passwords could you create for your account?

$$\underline{26} \cdot \underline{26} \cdot \underline{26} \cdot \underline{26} \cdot \underline{26} \cdot \underline{26} = 308,915,776$$

- b. What if you could not repeat letters?

$$26 \cdot 25 \cdot 24 \cdot 23 \cdot 22 \cdot 21 = 165,765,600$$

- c. What if your password needed to have 4 letters followed by 2 numbers and repeating letters and numbers are allowed?

$$\underline{26} \underline{26} \underline{26} \underline{26} \underline{10} \underline{10} = 45,697,600$$

- d. What if your password needed to have 4 letters and 2 numbers and repeating letters and numbers are NOT allowed?

$$26 \cdot 25 \cdot 24 \cdot 23 \cdot 10 \cdot 9 = 32,292,000$$