Name:

UNIT 10 – 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?

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

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

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

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

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

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?

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

   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?

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

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

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