

## Lessons 5-1 thru 5-3 Learning Check

Directions: Answer the questions below – silently & individually. When you are done, log into Navnet & enter your answers. You have 15 minutes to complete this.

1. Blimpway Sammich Shop has a huge number of options. You can choose between white, wheat, rye or pumpernickel bread, you have options of bologna, tongue and liverwurst for your meat. Additionally, you can choose between Gouda, Cheez Whiz or Limburger cheeses and you can top your sandwich with mustard, garlic peanut butter or Uncle Jimbo's Out-in-the-sun Mayo. How many sandwiches are possible?

$$4 \cdot 3 \cdot 3 \cdot 3 = 108$$

2. A 12-question multiple choice quiz can be answered with a, b, or c on each question. How many ways can the questions be answered?

$$3^{12} = 531,441$$

3. Consider alphanumeric license plates with 6 characters. How many license plates are there with exactly 5 numbers?

$$[26 \cdot 10 \cdot 10 \cdot 10 \cdot 10 \cdot 10] \cdot 6 = 19,600,000$$

4. 10 children are in a class. How many possible "class rankings" are there? Show work.

$$10! = 3,628,800$$

5. There are 14 runners in a race. How many ways can we award gold, silver and bronze medals?

$$14P_3 = 2,184$$

6. Pizza Mart offers 11 different toppings for their pizzas. Suppose you order one pizza, but can't decide whether you want 3 or 5 different toppings. How many **different** pizzas are possible? Show work.

$$11C_5 + 11C_3 = 462 + 165 = 627$$

7. A restaurant offers a "10.99 Special". You get to choose 1 out of 6 main entrees, 2 side-dishes out of 8, and 1 dessert out of 5.

- a. How many possible "10.99 Specials" are there if a person gets 1 entrée, 2 **different** side-dishes and 1 dessert? Show work.

$$6 \cdot 8C_2 \cdot 5 = 840$$

- b. The total number of possible "10.99 Specials" is \_\_\_\_\_

$$6 \cdot 36 \cdot 5 \rightarrow C(n+k-1, k)$$

8. The Brady Bunch family (2 parents, 6 kids) goes to the movies. They find a row of eight seats that they can sit at. If the parents decided that each of them should **sit at a seat on the end**. How many possible seating arrangements are there now?

$$\boxed{2} \cdot 6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1 \cdot \boxed{1} = 1440$$

OVER →

9. Consider the function  $f(x) = \frac{-6x^2 + 3}{3x^2 - 1}$ . Identify its horizontal asymptote.

*DO NOT TOUCH YOUR CALCULATOR TO FIGURE THIS OUT!!!*

**A.**  $y = -3$    **B.**  $x = -1$    **C.**  $x = 2$    **D.**  $y = -2$    **E.**  $y = -1$

10. If a polynomial  $p(x)$  is divided by  $x - 7$ , the remainder is ...

**A.**  $p(-7)$    **B.**  $p(x + 7)$    **C.**  $p(x - 7)$    **D.**  $p(0)$    **E.** *none of the above*