

Name: \_\_\_\_\_

**Math Test**  
**Primes, Composites, Prime Factors, Multiples, and Factors**

**Overall Assessment:**

Understands mathematical concepts and relationships (6 questions)	
Uses mathematical reasoning to analyze and solve problems (4 questions)	
Models, represents, and communicates mathematical ideas (3 questions)	

1. Rana wants to buy an even number of bubblegum and licorice. Bubblegum comes in packages of 12. Licorice comes in packages of 8. How many packages of each will she have to buy in order to have an equal amount of licorice and bubblegum? Make sure to write your answer in a **complete sentence**.

licorice  
8  
16  
24  
32

bubblegum  
12  
24  
36

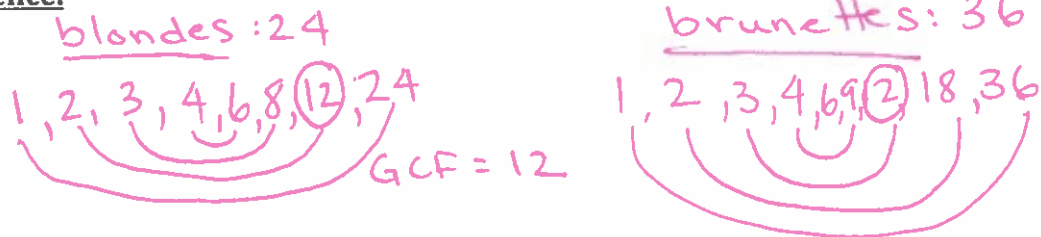
LCM = 24

Rana will have to buy 3 packages of licorice and 2 packages of bubblegum to get 24 pieces of each.

1.

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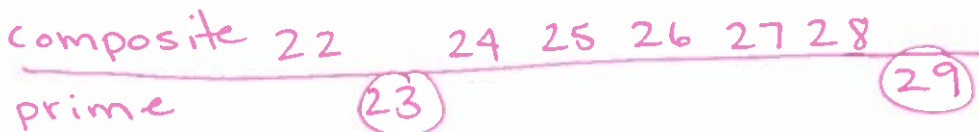
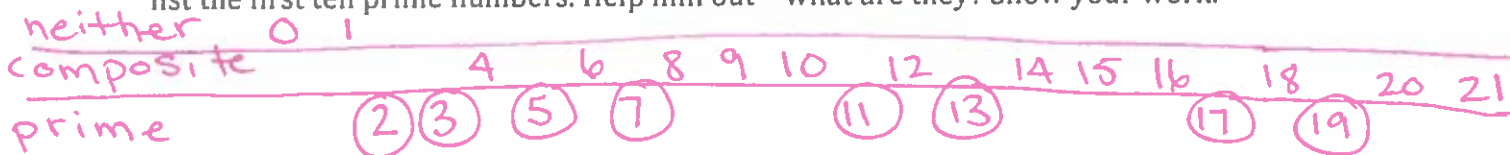
2. Harry decides to enter the science fair. He is trying to find out information about hair color and athletic ability. 24 blondes volunteer and 36 brunettes (brown hair) volunteer. Bobby wants to make <sup>as many groups as</sup> the groups as large as possible, but with equal amounts of blonds in each group, and equal amounts of brunettes in each group. How large will his groups be? How many blondes will be in each group? How many brunettes will be in each group? Make sure to write your answer in a **complete sentence**.



The most amount of groups Harry can make is 12. They will have 2 blondes and 3 brunettes in each group.

2.	Understands mathematical concepts and relationships	
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3. Justin enters a contest about prime numbers. Starting at 0, they are asked to list the first ten prime numbers. Help him out - what are they? Show your work.



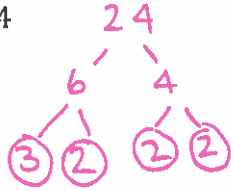
The first ten prime numbers are: 2, 3, 5, 7, 11, 13, 17

3.	Understands mathematical concepts and relationships	
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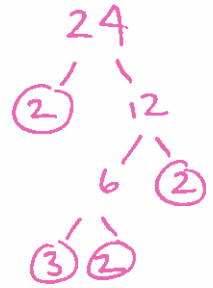
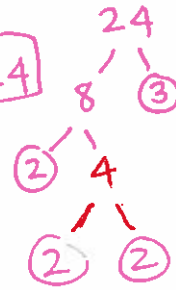
19, 23, 29

4. Use a **prime factorization tree** to find the prime factors that make up the numbers below. Write the final equation.

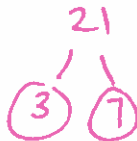
a. 24



$$2 \times 2 \times 2 \times 3 = 24$$

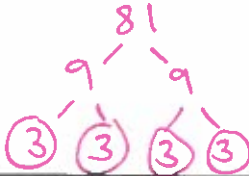


b. 21

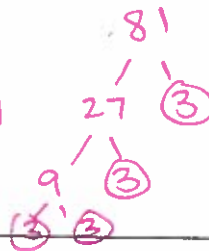


$$3 \times 7 = 21$$

c. 81



$$3 \times 3 \times 3 \times 3 = 81$$



4.	Understands mathematical concepts and relationships	
	Models, represents, and communicates mathematical ideas	

5.

Taylor creates the Math Game Card shown below by recording numbers in the squares. Some of the numbers have a common factor.

Math Game Card		
63	14	32
57	☺	84
49	98	21

What common factor do six of the numbers on the game card share? Show your work.

- ~~A.~~ 2 - doesn't work. Only a factor of 14, 32, 84
- ~~B.~~ 4 - ~~is~~ doesn't work. Only a factor of 32, 84
- C.** 7 - factor of 63, 14, 21, 49, 84, 98 - winner!
- ~~D.~~ 9 - doesn't work. Only a factor of 63

5.	Understands mathematical concepts and relationships	
	Uses mathematical reasoning to analyze and solve problems	

6.

A class of between 20 and 28 students went on a field trip. They tried to organize themselves into groups of 2, 3, 4, or 5, but they found that there were always students left over.

How many students were in the class? *Prove it.*

- ~~A.~~ 21 *doesn't work. can be divided by 3.*
- B.** 23 *works! can't be divided by 2,3,4,5. Prime number*
- ~~C.~~ 25 *doesn't work. can be divided by 5.*
- ~~D.~~ 27 *doesn't work. can be divided by 3.*

6.

Understands mathematical concepts and relationships	
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7. What did you find easiest about these math topics? What did you find most challenging? Any other comments?