

### 3A.12 Review for Test 3A: Factors and Multiples

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

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1) It seems we are always finding the GCF and LCM of two or more numbers. Why don't we ever find the LCF (least common factor) or GCM (greatest common multiple)?

2) 561 is the product of 3 prime numbers. How many factors of 561 are not prime? List them.

#### SAT problem

3) Out of 50 families in a certain town, 20 own a dog and 35 own a cat. If 2 families don't own either of them, what fraction of families owns both a dog and a cat?

A)  $\frac{7}{50}$

B)  $\frac{1}{5}$

C)  $\frac{11}{50}$

D)  $\frac{6}{25}$

E)  $\frac{7}{48}$



4) A dance off is proposed as a new spirit week activity. 66 sixth graders, 110 seventh graders, and 132 eighth graders will participate. Each dance team will include some sixth graders, some seventh graders, and some eighth graders. If all teams have the same number of members from each grade level, what is the largest numbers of dance teams that may be formed? How many sixth graders are on each team? How many seventh graders? How many eighth graders?

5) Find the least counting number  $A$  so that the product of 45 and  $A$  is a perfect square number.

6) True or False? (and prove it) The product of any two prime factors is always odd.

True or False? (and prove it) The prime factors of 15 are 1, 3, and 5.

True or False? (and prove it) Two even numbers can have a GCF of 7.

7) Decompose 360 into its prime factors. Then, write the prime factorization in expanded and exponential forms.



Expanded form  $360 =$

Exponential form  $360 =$

8) Mr. Colby bought a gross (144) of yo-yo strings for the yo-yo club from Amazon.com. The strings arrived in assorted colors blue, orange and neon green. There were more blue strings than orange strings and more orange strings than neon green strings. Mr. Colby was pleased to find that he was able to divide the strings evenly among the 18 members of the yo-yo club with each member receiving the same number of each color of string. How many of each color string did Mr. Colby receive from Amazon.com?



9) What is the least multiple of 9 that is greater than 150?

10) How many pairs of numbers have a GCF of 32? Give at least two examples.

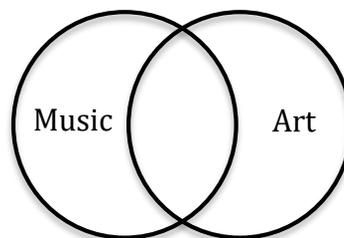
11) A pair of numbers greater than 150 and less than 200 have a GCF of 32 and a LCM of 960. What are the two numbers?

**SAT Problem**

12) In Mr. Kay's class, 55 percent of the students have chosen Music and 70 percent of the students have chosen Art. If all the students have chosen either or both programs, and if there are 40 students, how many students have chosen both programs?

- A) 5
- B) 10
- C) 12
- D) 14
- E) 15

Mr. Kay's Class After School  
Distribution of registered program



Note: Figure not drawn to scale

13) List the first seven counting numbers that are multiples of 12.

Which of these numbers have a total number of factors that is also a multiple of 12?

14) Use prime factorization to simplify this fraction.

$$\frac{420}{504}$$

15) Find a composite number between 50 and 60 whose prime factors have a sum of 11.

16) The Mayans used more than one calendar system. One calendar had 365 days. Another calendar had 260 days. If both calendars began on the same day, in how many days would they next begin on the same day?



Use your work from this problem to compare these two fractions using  $<$ ,  $>$ , or  $=$ .

$$\frac{27}{260} \bigcirc \frac{38}{365}$$