

3) on own

GCF & LCM Word Problems

Answer Key

Choose any 12 problems to complete

BASIC

1) The school cafeteria serves pizza every sixth day and applesauce every eighth day. Suppose that pizza and apple sauce are both on today's menu. In how many days will they be together on the menu again?

LCM

P: 6, 12, 18, 24, 30
A: 8, 16, 24

24 days

2) In preparation for a party, Bryan is putting desserts onto platters. The chocolate cake is cut into 10 pieces and the cheesecake is cut into 15 pieces. If he wants to prepare the greatest number of identical platters without having any cake left over, how much of each type of cake will be on a platter?

GCF

10: 1, 2, 5, 10
15: 1, 3, 5, 15

5 pieces

3) Bridget has swimming lessons every fifth day and diving lessons every third day. If she had a swimming lesson and a diving lesson on May 5, when will be the next date on which she has both swimming and diving lessons?

LCM

S: 5, 10, 15, 20
D: 3, 6, 9, 12, 15

May 20

4) Use the terms factor, divisor, multiple, and product to write at least 4 statements about the number sentence: $7 \times 9 = 63$

7 is a factor of 63
9 is a divisor of 63

63 is a multiple of 9
the product of 7 & 9 is 63

5) Pencils come in packages of 10. Erasers come in packages of 12. Philipp wants to purchase the smallest number of pencils and erasers so that he will have exactly 1 eraser per pencil. How many packages of pencils and erasers should Philipp buy?

- A. 4 packages of pencils and 3 packages of erasers
- B. 5 packages of pencils and 4 packages of erasers
- C. 6 packages of pencils and 5 packages of erasers
- D. 12 packages of pencils and 10 packages of erasers

P: 10, 20, 30, 40, 50, 60
E: 12, 24, 36, 48, 60

LCM

6) Tell whether the LCM of a set of numbers can ever be smaller than any of the numbers in a set.

Not possible b/c multiples of a # are that # or higher

7) The cast of a play had a party. The drama teacher served 20 cookies and 40 carrot sticks as refreshments. Each cast member ate the same number of whole cookies and the same number of whole carrot sticks. Nothing was leftover. The drama teacher did not eat. What is the largest number of cast members at the party?

GCF

COOKIES: 1, 2, 4, 5, 10, 20
CARROTS: 1, 2, 4, 5, 8, 10, 20, 40

20 cast members

8) Mandy is making emergency-preparedness kits to share with friends. She has 12 bottles of water and 16 cans of food, which she would like to distribute equally among the kits, with nothing left over. What is the maximum number of kits Mandy can make?

GCF

4 kits

MEDIUM

9) Aylin is making a scrapbook using 18 photos and 20 newspaper clippings. She wants all the pages to be set up in the same way, with the same combination of photos and newspaper clippings on every page. She also wants to make sure that no items are left over. What is the greatest number of scrapbook pages that Aylin can create?

2 pages

10) Gale is thinking of a number that is divisible by both 17 and 8. What is the smallest possible number that he could be thinking of?

17
x 8

136

LCM

11) Sarah's Shipping and Ryan's Mail Services both ship packages. Sarah's trucks will only carry loads of 18 packages. In contrast, Ryan's trucks will only carry loads of 11 packages. If both businesses ended up shipping the same number of packages this morning, what is the minimum number of packages each must have shipped?

198 pkgs

LCM

12) Janell is making stationery sets for gifts. She has 12 sheets of paper and 40 envelopes. If she wants all the sets to be identical without any paper or envelopes left over, what is the greatest number of sets Janell can make?

4 sets

GCF

13) Three pigs entered a race around a track. Piggly takes 6 minutes to run one lap. Piglet takes 3 minutes to run one lap and it takes Wiggly 5 minutes to run one lap. If all three pigs begin the race at the same time, how many minutes will it take for all three pigs to be at the starting point again?

30 min

Piggly: 6, 12, 18, 24, 30

Piglet: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30

Wiggly: 5, 10, 15, 20, 25, 30

14) When is the LCM of two numbers equal to the product of the two numbers?

when the only common factor between the 2 #'s is 1

15) The school's fire alarm is being tested and has been set to ring every 40 minutes throughout the day. The class bell sounds every hour. The school days starts at 8 AM and ends at 2 PM. At what times during the school day will both the alarm and the class bell sound together?

8:40; 9:20; 10:00; 10:40; 11:20; 12:00; 12:40; 1:20; 2:00

9:00; 10:00; 11:00; 12:00; 1:00; 2:00

(8:00) 10:00, 12:00, 2:00

16) Find a pair of numbers that has the given characteristics: The LCM of the two numbers is 26. One number is even and one is odd.

2 & 13

17) What is the mystery number pair?

Clue 1: The greatest common factor of the mystery number pair is 7.

Clue 2: The least common multiple of the mystery pair is 70.

Clue 3: Each of the numbers in the mystery number pair has two digits.

Clue 4: One of the numbers is odd and the other is even.

14 & 35

~~*~~, 14, 21, 28, 35, 42, 49, 56, 63, 70

18) Lydia found gift bags in packs of 27 and bows in packs of 36. If Lydia wanted to have the same number of gift bags as bows, what is the smallest number of gift bags she would have to buy?

3 packs of gift bags for 108 bags

19a) Mr. Mendoza and his 23 students are planning to have hot dogs at their class picnic. He can buy hot dogs in packages of 12 and hotdog buns in packages of 8. Mr. Mendoza wants everyone to get the same number of hot dogs and buns with no leftovers. What is the least number of packages of hot dogs and the least number of packages of buns he can buy? How many hot dogs and buns will each person get?

2 packages hot dogs & 3 packages buns * each person gets one
(24) (24)

19b) Suppose the class invites the principal, secretary, bus driver and 3 parent chaperones to help out at the picnic. Mr. Mendoza still wants everyone to get the same number of hot dogs and buns with no leftovers. How many packages of hot dogs and buns will he need to buy now? How many hot dogs and buns will each person get?

30 ppl

30: 30, 60, 90, 120

12: 12, 24, 36, 48, 60, 72, 84, 96, 108, 120

8: 8, 16, 24, 32, 40, 48, 64, 72, 80, 88, 96, 104, 112, 120

10 PKGS. hotdogs
14 PKGS. buns
each person gets 4

CHALLENGE

20) Dion's Sports sells golf tees in packs of 20. Meanwhile, Lindsey's Gear sells them in packs of 24. If both shops sold the same number of golf tees this week, what is the smallest number of tees each could have sold?

120 tees

LCM

21) For a large dinner party, Felicia is creating individual servings of appetizers. She has 100 pizza bagels and 160 chicken wings. If she wants each serving to be identical, with no food left over, what is the largest number of servings Felicia can create?

20 servings

22) Suppose that in some distant part of the universe there is a star with four orbiting planets. One planet makes a trip around the star in 6 Earth years. The second planet takes 9 Earth years.

The third takes 15 Earth years, and the fourth takes 18 Earth years. At some point the planets are lined up. Scientists call this alignment a conjunction. How many Earth years will pass before the planets are lined up again?

18: 18, 36, 54, 72, 90

90 earth years

23) Shannon is making identical balloon arrangements for a party. She has 32 maroon balloons, 24 white balloons, and 16 orange balloons. She wants each arrangement to have the same number of each color. What is the maximum number of arrangements that she can make if every balloon is used?

GCF

8 arrangements

24) The GCF of three numbers is 9. The sum of the numbers is 90. Find the three numbers.

9, 18, 27, 36, 45, 54, 63, ~~72~~, ~~81~~

18, 27, 45

25) Ms. Santiago has many pens in her desk drawer. She says that if you divide the total number of pens by 2, 3, 4, 5, or 6, you get a remainder of 1. What is the least number of pens that could be in her desk?

7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43

61

26) Determine whether each statement is always, sometimes or never true. Justify your answer with an example or statement.

a) The GCF of two even numbers is 2. *sometimes*

b) The GCF of two different prime numbers is 1. *always*

c) The LCM of any number n and 1 is n . *always*

27) Find a set of numbers that satisfy the conditions.

a) The GCF of two numbers is prime. The LCM of the two numbers is composite. *ex: 4 & 6*

b) The LCM of two different numbers is a square number. *ex: 5 & 25*

c) The GCF and LCM of two numbers are equal. *ex: 20 & 20*

d) The GCF of two numbers is 12. The LCM of the two numbers is 72. *24 & 36*

e) The GCF of four numbers is 1. *2, 3, 4, 5*

28) Make up a word problem that you can solve by finding the greatest common factor.

29) Make up a word problem that you can solve by finding the least common multiple.