Grade 4 Math Worksheet 3 : Factors & Multiples -Types of Numbers (Advanced Level)

Name: _____

Date: _____

Part 1: Prime Factorization and GCF

1. What is the prime factorization of 288?
a) 2 × 2 × 2 × 3 × 3 × 3
b) 2 × 2 × 2 × 2 × 3 × 3
c) 2 × 3 × 5 × 5
d) 2 × 2 × 3 × 5 × 5

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2. What is the greatest common factor (GCF) of 84 and 126?
a) 6
b) 12
c) 18
d) 42

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3. What is the GCF of 60, 72, and 90?
a) 6
b) 12
c) 18
d) 30

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4. Find the prime factorization of 450.
a) 2 × 3 × 5 × 5 × 5
b) 2 × 2 × 3 × 3 × 5 × 5

c) 2 × 2 × 5 × 5 × 5
d) 3 × 3 × 5 × 5 × 5

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5. What is the GCF of 72, 96, and 144?
a) 8
b) 12
c) 24
d) 48

Part 2: Least Common Multiple (LCM)

6. What is the LCM of 12 and 15?
a) 30
b) 60
c) 75
d) 120

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7. What is the LCM of 18 and 24?
a) 72
b) 144
c) 96
d) 216

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8. The school bus departs every 20 minutes and the city bus departs every 25 minutes. If both buses depart at 8:00 a.m., at what time will they next depart together?
a) 8:40 a.m.
b) 8:50 a.m.
c) 9:00 a.m.
d) 9:20 a.m.

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9. What is the LCM of 14, 28, and 35?
a) 70

b) 105
c) 140
d) 210

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10. The LCM of two numbers is 36, and their GCF is 12. If one of the numbers is 12, what is the other number?
a) 18
b) 24
c) 36
d) 72

Part 3: Word Problems - Real-Life Applications

11. You are organizing a charity event. You have 48 chairs and 72 tables. You want to arrange them into rows where each row has the same number of chairs and tables. What is the greatest number of chairs and tables that can go into each row?
a) 6
b) 8
c) 12
d) 24

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12. Two gardeners are planting flowers. One gardener plants every 5 minutes, and the other plants every 6 minutes. If they both start at the same time, when will they both plant together again?
a) 30 minutes
b) 60 minutes
c) 120 minutes
d) 180 minutes

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13. Emma has 60 red balloons and 90 blue balloons. She wants to pack them into gift boxes with the same number of red and blue balloons. What is the greatest number of balloons she can put in each gift box?
a) 15

b) 30

c) 45

d) 60

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14. A factory produces 48 pencils every 6 minutes and 72 erasers every 9 minutes. If both machines start at 12:00 p.m., when will they both finish producing at the same time again?

a) 12:36 p.m.

b) 12:48 p.m.

c) 1:00 p.m.

d) 1:12 p.m.

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15. A teacher wants to divide 72 books and 108 notebooks into groups with the same number of books and notebooks in each group. What is the greatest number of books and notebooks she can put in each group?

a) 6

b) 12

c) 18

d) 24

Part 4: Prime and Composite Numbers

16. Which of the following numbers is a prime number?

a) 17

b) 18

c) 20

d) 21

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17. Which of the following numbers is a composite number?

a) 11

b) 13

c) 29

d) 45

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18. Which of the following is a prime number?

a) 31

b) 39

c) 45

d) 49

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19. Which of the following is a composite number?

a) 23

b) 37

c) 41

d) 55

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20. Which of the following is NOT a prime number?

a) 2

b) 3

c) 5

d) 21

Part 5: Mixed Problems - GCF, LCM, and Prime Factorization

21. What is the LCM of 16 and 20?

a) 40

b) 60

c) 80

d) 120

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22. Find the GCF of 54, 72, and 108.

a) 6

b) 12

c) 18

d) 36

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23. What is the prime factorization of 225?

a) 3 × 3 × 5 × 5
b) 5 × 5 × 5 × 3
c) 2 × 3 × 5 × 5
d) 3 × 3 × 3 × 3 × 5

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24. What is the LCM of 24, 36, and 72?

a) 72
b) 144
c) 180
d) 288

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25. What is the GCF of 36, 72, and 108?

a) 6
b) 12
c) 18
d) 36

Bonus Challenge

26. What is the LCM of 8, 12, and 15?

a) 120
b) 180
c) 240
d) 360

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27. What is the GCF of 84, 105, and 126?

a) 12
b) 21
c) 28
d) 42

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28. What is the prime factorization of 900?
a) 2 × 2 × 3 × 3 × 5 × 5
b) 2 × 2 × 5 × 5 × 5
c) 3 × 3 × 5 × 5 × 5
d) 2 × 2 × 3 × 3 × 5 × 5 × 5

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29. What is the LCM of 9 and 15?
a) 15
b) 45
c) 75
d) 90

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30. What is the prime factorization of 512?
a) 2 × 2 × 2 × 3 × 3 × 3
b) 2 × 2 × 2 × 2 × 2 × 2 × 2
c) 3 × 3 × 5 × 5
d) 2 × 2 × 5 × 5 × 5 × 5

--BE THE CHAMPION!--