**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_**

**ANSWER KEY**

**Worksheet 7**

**Directions: Answer each question with “Yes” or “No” and state a divisibility rule from your notes as a reason for that answer. You may use a calculator to verify your answer.**

1. Is 5,126 divisible by 4? 2. Is 6,327divisible by 3?

NO, because the last two digits are not divisible by 4. (26 ÷ 4)

YES, because the sum of the digits is divisible by 3. (6+3+2+7=18)

1. Is 514,532 divisible by 6? 4. Is 103,242 divisible by 6?

NO, because even though it is even and divisible by 2. It is not divisible by 3. The sum of the digits is 20 which is not divisible by 3.

YES, it is divisible by 2 and 3. It is even and the sum of the digits is 12 which is divisible by 3.

1. Is 184,327 divisible by 9? 6. Is 274,901 divisible by 7?

NO, because if you double last digit and keep subtracting it is not divisible by 7.

27490-2=27488

2748-16=2732

273-4=269

26-18=8

NO, because the sum of the digits is 25 which is not divisible by 9.

1. Is 20,488 divisible by 8? 8. Is 11,199 divisible by 11?

NO, because “plus” “minus” does not give a number divisible by 11.

0 + 1 - 1+ 1 – 9 + 9

1 - 1 +1 – 9 + 9

0 + 1 – 9 + 9

1 – 9 + 9

-8 + 9 = 1 (not divisible by 11)

YES, because the last 3 digits are divisible by 8.

1. Is 12,164 divisible by 11? 10. Is 318,512 divisible by 12?

NO, because it is not divisible by 3 and 4. The sum of the digits is 20 which is not divisible by 3.

NO, because “plus” “minus” does not give a number divisible by 11.

0+1-2+1-6+4 = -2

11.**True or False**: 75 |1512***.* True or False:**6 | 12

TRUE

12 is a multiple of 6

FALSE

15 is not a multiple of 75

13.**“**Every odd number greater than 5 can be written as the sum of three primes.” Show that this is a true statement by writing 27 as the sum of three prime numbers.

(Answers will vary.)1 + 7 + 19 = 27

17 + 7 + 3 = 27

**Determine if the following are Prime or Composite: Show how you determined your answer.**

Composite

Composite

Prime

14. 523 15. 993 16. 451

22.87 21.24

*9 + 9 + 3 = 21*

Check divisibility rules

Divisible by 3

A number with a circle in the middle

Description automatically generated***A white paper with blue text

Description automatically generated***

17. List the factors of 2000.

1, 2, 4, 5, 8, 10, 16, 20, 25, 40,

50, 80, 100, 125, 200, 250, 400, 500, 1000, 2000

18. List the prime factorization of 2000.

24 \* 53

19. Find the number of positive divisors of 3,000,000.

26 · 31 ·56 = (6 +1)(1 + 1)(6 +1) = 7· 2 · 7 = 98 divisors

20. Every composite whole number can be expressed as the product of primes in exactly one way except for the order of the factors of the product is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Fundamental Theorem of Arithmetic