

T101 REVIEW CHAPTER 4

Fall 2007

DIRECTIONS: Part with and Part without a calculator.

Demonstrate each of the following using the CHARGED FIELD MODEL. You may not change the subtraction to an addition problem. . Explain your answer.

1) $-5 + 8$ 1) _____

2) $-5 - 3$ 2) _____

3) $(-2)(3)$ 3) _____

4) Demonstrate $-3 + 5$ using a number line model. 4) _____

Simplify each of the following.

5) $-64 \div 8$ 5) _____

6) -3^2 6) _____

7) $-8 \div 0$ 7) _____

8) $0 \div -8$ 8) _____

9) $-21 - -15$ 9) _____

10) $(-52 - -34) \div 3$ 10) _____

11) $-|-18|$ 11) _____

12) $10 - 3 \cdot 7 - 4(-3 + 3) - 11$ 12) _____

13) $x - (x - y)(-2)$ 13) _____

14) $(3x + 4)(3x - 4)$ 14) _____

Find the additive inverse of each of the following. (1 point each)

15) $|-4|$

15) _____

16) $x - y$

16) _____

17) a

17) _____

Identify the property of integers being illustrated in each of the following. (2 points each)

18) $2(-3) = -3(2)$

18) _____

19) $5(-9 + 3) = 5(-9) + 5(3)$

19) _____

20) $-3 + 3 = 0$

20) _____

21) $3 + (5 + -8) = (3 + 5) + -8$

21) _____

Use your divisibility test to determine if each of the following numbers will divide into 610,500.

Explain your answer for each.

22) 2

22) _____

23) 3

23) _____

24) 4

24) _____

25) 5

25) _____

26) 6

26) _____

27) 8

27) _____

28) 9

28) _____

29) 10

29) _____

30) 11

30) _____

Factor the expression, then simplify if possible.

31) $x^2 + 4x$ 31) _____

32) $a^2 - 16b^2$ 32) _____

Write an addition problem and find the sum (3 points)

33) In a game of Hearts, Steve's scores in six successive turns are 32, -15, -7, 9, 10 and -15. What is his total at the end of six turns? 33) _____

Classify as true or false.

34) Every whole number is an integer. 34) _____

35) If 4 and 6 both divide a number, then 24 divides the number. 35) _____

36) Every prime number is odd. 36) _____

37) $|-a| = |a|$ 37) _____

38) $GCF(a, b) \leq LCM(a, b)$ for all whole numbers a and b. 38) _____

39) The number 19 is a multiple of 38. 39) _____

Determine all values for the digit x that makes the statement true. If none exists, then state this.

40) $4,x53$ is divisible by 9. 40) _____

41) $7,3x4$ is divisible by 6. 41) _____

42) Draw a factor tree to find the prime factorization of 240. 42) _____

43) Use the above problem to determine how many factors there are for 240. 43) _____

44) If x is a multiply of 5, name the next two multiples of 5 after x. 44) _____

45) What are the only prime factors that must be considered to test whether 463 is prime? 45) _____

46) Is 463 prime (show work)? If not give its prime factorization. 46) _____

- 47) The number $2^a \cdot 5^4 \cdot 13^2$ has 75 factors. Find a. 47) _____
- 48) List all factors of 54. 48) _____
- 49) If $24|n$, what other positive integers divide n? 49) _____
- 50) What is the smallest natural number divisible by 2, 4, 5, 6, and 12? 50) _____
- 51) Find the GCD(24, 40) by the intersection of sets model. Show all work. 51) _____
- 52) Find the GCD(108, 360) by Prime factorization. Show all work. 52) _____
- 53) Use your answer to the above question th find the LCM(108, 360) 53) _____
- 54) Find the LCM (50, 45, 60)using Division by primes method. Show all work. 54) _____
- 55) Find GCD(468, 5850) using the Euclidean Algorithm. Show all work.) 55) _____
- 56) Use your work from the above problem to find the LCM (468, 5850). Show all work. 56) _____
- 57) Two bells ring at 8:00A.M. For the remainder of the day, one bell rings every 45 minutes and the other bell rings every half hour. What time will it be when the bells ring together again? (show work) 57) _____
- 58) A bakery has 300 chocolate chip cookies and 264 peanut butter cookies. The bakers wish to divide the chocolate chip cookies into piles and the peanut butter cookies into piles so that each pile has only one type of cookie, there is the same number of cookies in each pile, and each pile has the largest possible number of cookies. 58) _____
- How many cookies will there be in each pile?
 - How many piles of chocolate chip cookies will there be?(3 points)
- 59) Find the LCM for the following numbers. Leave your answer in exponential form. 59) _____
- $2^3 \cdot 5^2 \cdot 7^3$, $2 \cdot 5^3 \cdot 7^2 \cdot 13$, and $2^4 \cdot 5 \cdot 7^4 \cdot 29$

Answer Key

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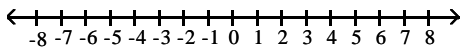
1) ----- ++++++++ leaves +++ 3

2) -----

+++ take these away leaves ----- -8

3) -----

+++++ take away 2 groups of 3 positives leaves ----- -6



4)

5) -8

6) -9

7) undefined

8) 0

9) -6

10) -6

11) -18

12)

13) -2y

14) $9x^2 - 16$

15) -4

16) $-(x - y)$ or $-x + y$

17) -a

18) Commutative Property for integer multiplication

19) Distributive Property of multiplication over addition for integers.

20) Uniqueness Property of the Additive Inverse

21) Associative property of addition of integers.

22) Yes $2|0$

23) Yes $3|12$ Sum of digits

24) Yes $4|00$

25) Yes ends in 0 or 5

26) Yes 2 and 3 are both factors.

27) No 8 does not divide 500

Answer Key

Testname: CHAPTER 4 REVIEW FALL 2007 4

- 28) No 9 does not divide 12
- 29) Yes ends in 0
- 30) Yes $11 \mid (6 + 0 + 0) - (1 + 5 + 0)$
- 31) $x(x + 4)$
- 32) $(a - 4b)(a + 4b)$
- 33) 14
- 34) True
- 35) False $4 \mid 12$ and $6 \mid 12$ but 24 does not
- 36) False two is prime and even
- 37) True
- 38) True
- 39) False 38 is a multiple of 19
- 40) 6
- 41) 1,4,7
- 42) $2^4 \cdot 3 \cdot 5$
- 43) $(4 + 1)(1 + 1)(1 + 1) = 20$
- 44) $x + 5, x + 10$
- 45) 2, 3, 5, 7, 11, 13, 17, 19
- 46) Prime- none of the above numbers is a factor of 463
- 47) 4
- 48) 1, 2, 3, 6, 9, 18, 27, 54
- 49) 1, 2, 3, 4, 6, 12
- 50) 60
- 51) 8
- 52) 36
- 53) 1080
- 54) 900
- 55) 234
- 56) 11,700
- 57) 9:30
- 58) a. 12 in each b. 25 chocolate chip
- 59) $2^4 \cdot 5^3 \cdot 7^4 \cdot 13 \cdot 29$