

Math4010 Midterm 2 Jeopardy Review

Arithmetic

For each problem, use two different methods to show each of the computations.

10 points-- $145_7 \cdot 63_7$

20 points-- $1001111_2 + 111001_2$

30 points-- $735_8 \div 6_8$ (Use one partitive and one measurement model.)

40 points-- $201_3 - 122_3$

50 points-- $331_4 + 230_4$

60 points-- $441_5 \cdot 4_5$

70 points-- $532_6 \div 41_6$ (Use one partitive and one measurement model.)

80 points-- $2345_9 - 1867_9$

GCF/LCM

For each problem, use two different methods to find both the GCF and LCM of the given numbers. (You can leave answers in factored form, if you'd like.)

10 points-- 36, 1470

20 points-- 462, 180

30 points-- 225, 154

40 points-- 270, 210, 630

50 points-- 45, 60, 66

Properties

10 points-- Rewrite these expressions as a single exponent expression.

(a) $7^{12} \cdot 2^{12} \cdot 14^5$

(b) $4^5 \div 2^8$

20 points-- How many factors does the number $2^3 \cdot 3 \cdot 7 \cdot 11^2$ have?

30 points-- Identify the property of whole numbers being used in these examples.

(a) $(3+2) \cdot 1 = 3+2$

(b) $(4+7)+8 = 4+(7+8)$

(c) $(a-b)c = ac - bc$

(d) $(5 \cdot 3)7 = (3 \cdot 5)7$

(di)

40 points—Using the following table that defines the operator * on the set {X, Y, z}, answer the questions.

*	X	Y	Z
X	Y	Y	X
Y	A	Z	Y
Z	X	Y	Z

(a) Is the set closed under the operator *?

(b) Is there an identity element? If so, what is it?

(c) Is the operator commutative?

(d) Find $Y * Z$.

(di)

50 points-- If each different letter represents a different digit, find the number "HE" such that $(HE)^2 = SHE$.

True/False

For each problem, determine if the statement is true or false. If it's false, explain why.

10 points-- Subtraction of whole numbers is commutative.

20 points-- Every prime number is odd.

30 points-- The number 12 is a multiple of 36.

40 points-- $(3^4)^2 = 3^{(4^2)}$

50 points—There is only one right way for students to perform all the arithmetic operations, namely the standard algorithm.

60 points—If $a \neq b$, then $GCF(a, b) < LCM(a, b)$.

Hodge Podge

10 points-- Do these computations, or explain why they cannot be done.

(a) $0 \div 5$

(b) $3 \div 0$

(c) $0 \div 0$

20 points-- Calculate the following problems mentally (but write down your steps).

(a) 17×99

(b) $17(6) - (6)7$

(c) $81 - 39$

30 points-- Suppose a student said that the sum of the digits of the number 354 is 12 and therefore 354 is divisible by any number that divides into 12, like 2, 3, 4 and 6. Would you agree with the student? Explain.

40 points-- Explain the difference between the wording "divided by," "divided into," and "divides."

50 points-- When Joe sorts his marbles, he notices that if he puts them into groups of 5, he has 1 left over. When he puts them into groups of 7, he also has 1 left over, but in groups of size 6, he has none left over. What is the smallest number of marbles that he could have?

60 points—Three neighborhood dogs barked consistently last night. Spot, Patches, and Lady began with a simultaneous bark at 11 p.m. Then, Spot barked every 4 minutes, Patches every 3 minutes and Lady every 5 minutes. When did Mr. Jones suddenly awaken from the loud sound of all three dogs barking together?