Exam 1

Name: _____

Date: _____

Raw Score: _____ ;   your grade: _____ / _____ =_____%   Circle one: MWF   MW   TR

The rules: All problems are worth 2 points unless otherwise noted. Use Pencil. All work must be your own. Keep your eyes on your own paper. Show all work NEATLY on this exam for full credit, **simplify and box your answers**. You may only use scratch paper I provide, but none of the work on the scratch paper will be graded, you must neatly copy the pertinent work onto your exam. Simplify/reduce all answers. No notes or other materials are allowed, no electronic devices of any type, please turn your phone off. You may not talk, text, call or consult with anyone/thing during the exam. You may laugh, but only if it's because it's funny how hard you're killing this exam. You may cry, but only outside and after the exam, and only if they are tears of joy. If you have any questions please do not hesitate to come to the front and ask me. If you read these instructions draw your best elephant here: (even if it's a stick giraffe looking elephant)

Conceptual questions:

1. What are the integers numbers?_____

2. Show me an example of the commutative property of multiplication. _____

3. When you think of the commutative property of addition, what is the best single word we discussed in class that summarizes this property?

4. Is division associative?

5. What is the definition of a prime number?

6. List all prime numbers less than 36.

7. What is the definition of a composite number?

8. What is the divisibility test for seeing if a number is divisible by 4?

9. (3 pts) Is 2,343,765,033 divisible: **a)** by 4? **Yes** or **No**.   **b)** by 3? **Yes** or **No**?   **c)** by 6? **Yes** or **No**

10. Fill in the blank to create a new number that is divisible by 9.   8,223,299___

11. (3 pts)Round the number 789,456,321 to the nearest:
    a. Thousands place:_____
    b. Ten millions place:_____
    c. Billions place: _____
12. What does the unique factorization theorem say?

13. State the order of operations as discussed in class.

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Alternate Bases:

14. (4 pts.) Base 2: In base 2 there are only _____ number of digits. They are _____.
List the following place values for all base 2 numbers.

_____ _____ _____ _____ _____ _____
                                                                        "Ones"

15. Express the base ten number "fifteen" in base two. _____

16. Express the base two number "101011" in base ten. _____

17. Express the base ten number "sixteen" in base three. _____

Find the prime factorization of the numbers: (express your answers in exponential form)

18. 36   19. 220   20. 1260

21. If you spend $13.42 at taco bell and you pay with $20.00. Count up to determine what your change is.
Ans:_____

Simplify

22. $625 + 752 + 598$ 23. $189 + 214$ 24. $193 - 38$ 25. 435×16

26. Use the Russian algorithm to find $109 \div 12$

27. Simplify $(20)(8899)(77)(0)(4) + (3)(5)$

Simplify

28. $98 + 313 + 97 - 100$

29. $912 - 16 - 501 + 3$

30. $33 + 1,298 + 62,785 + 19,446$

31. $20 \times 900 \times 50,000$

32. $72 \cdot 7000$

33. $0 \overline{)25}$

34. $20 \div 0$

35. $11 \div 1$

36. $0 \div 15$

37. $\dfrac{250 \cdot 400}{1000}$

38. $\dfrac{180}{60}$

Simplify the following expressions:

39. $15 \div 5 \cdot 3 =$ _____

40. $8 - 6 \cdot (2 - 1)^2 + 2$

41. $19 + 2[12 - (2^3 + 1)]$

42. $(10 + 5)^2 - 5^2$

43. $\dfrac{90 - 50 + 40}{16 \div 4 \cdot 2}$

44. $\dfrac{1 + 17}{3^2 - 9}$

45. If there are 12 eggs in one dozen, and 4 dozen in one gross. How many eggs are in a shipment of 36 gross?

46. Identify the base and exponent of $\left(\frac{5}{9}\right)^3$

Base =   Exponent =

Evaluate each expression.

47. 4^3 48. 3^5 49. 10^4

50. Use Napiers bones shown to the right to calculate the product $4 \cdot (425,928)$

Place your answer on the space provided and do not use any other method

Please show any carying the that is required on the picture.

Ans: _____

51. Use the Sieve of Eratosthenes given to find the 20th prime number.   Ans: _____

	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

52. Use the a) line method & them b) lattice method discussed in class to calculate 132x13. Clearly show lines separating the correct place value for each.

Extra Credit: Check your work by checking your answers in base 10.

Add the base 2 number IN BASE 2:   Multiply the base 2 number in base 2.   Add the base 3 number in base 3

EC1.
```
  1111
  +11
_____
```

EC2.
```
  1111
 × 11
_____
```

EC3.
```
  1111
  +11
_____
```