

1. Do five of the six parts on this problem. Cross out the one you decide not to do. Show work and explain. 4 pts each

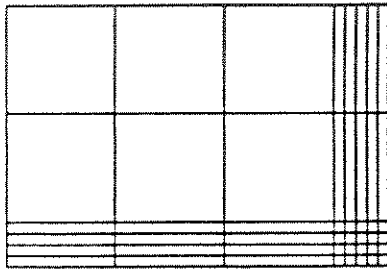
<p>a. Evaluate this: $5 + 2 \cdot 12 \div 4 - 2^2$</p> $5 + 24 / 4 - 4$ $5 + 6 - 4$ $11 - 4 = \underline{7}$	<p>b. State the answer as a <u>power of two</u>:</p> $\frac{4^3 \cdot 8 \cdot 16}{32 \cdot 2^6} = \frac{\cancel{2^4} \cdot 2^3 \cdot \cancel{2^4}}{2^5 \cdot \cancel{2^6}} = \frac{2^7}{2^5} = \underline{\underline{2^2}}$								
<p>c. Circle the even numbers:</p> <p>1122121212₃ <u>12121211₂</u> <u>22112122111₅</u></p> <p style="text-align: center;">↓ ↓ ↓</p> <p>5 odd places just digit 6 odd places</p> <p>(odd) (even) (even)</p>	<p>d. What digit needs to replace A so that 11 divides 56,2A3.</p> $5 + 2 + 3 = 6 + A$ $10 = 6 + 4$ <p>11 / 56,243</p> <p style="text-align: center;"><u><u>A = 4</u></u></p>								
<p>e. Explain why this is or is not true: $3^6 12!$</p> <p>Can I find 6 factors of 3?</p> <table style="margin-left: 20px;"> <tr> <td>3</td><td>6</td><td>9</td><td>12</td> </tr> <tr> <td>1</td><td>1</td><td>1</td><td>1</td> </tr> </table> <p style="margin-left: 100px;">No, I can only find <u>5</u>.</p>	3	6	9	12	1	1	1	1	<p>f. Show how to use properties to make this math problem easy. 12×59</p> $12 \cdot 59 = 12(60 - 1)$ $= 12 \cdot 60 - 12 = 720 - 12$ $= \underline{\underline{708}}$
3	6	9	12						
1	1	1	1						

2. Write at least five things that a | n means using words like multiple, divisor, factor, etc. 5 pts.

$ca = n$ for some whole number c
 $\frac{n}{a}$ has no remainder
 a is a factor of n
 n is a multiple of a
 a is a divisor of n
 a divides n

3. For five of the six (cross one out) problems on this page, write the problem and the answer represented by the illustration. If division, state partitive or measurement. If multiplication, state model. Be sure to include the base if other than ten. 5 pts each.

a.

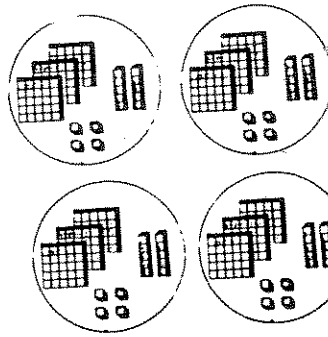


Area Model
(Blocks)

$$24 \times 35 = 600 + 100 + 120 + 20$$

$$24 \times 35 = 840$$

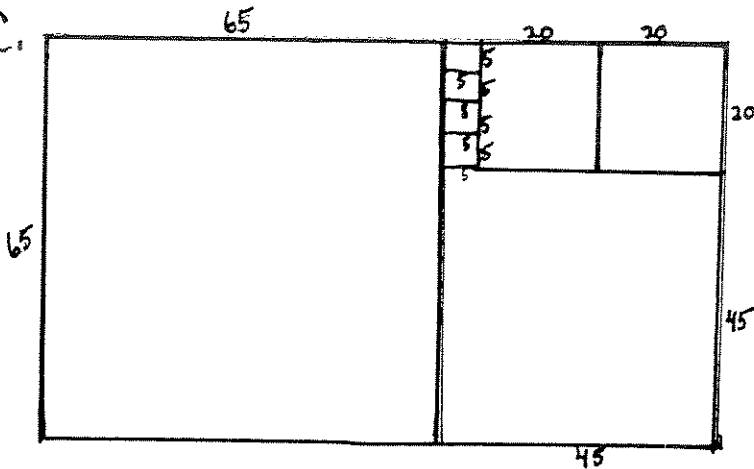
b.



Partitive

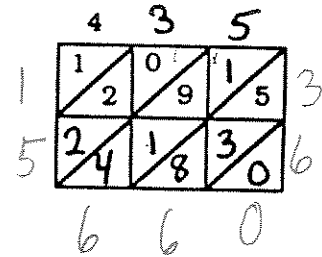
$$2413_5 \div 4_5 = 324_5 R2$$

c.



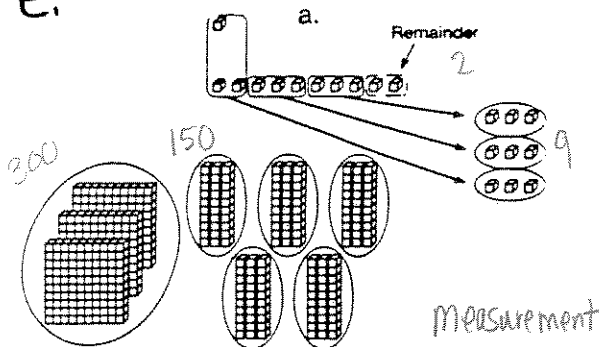
$$GCF(110, 65) = 5$$

d.



$$36 \times 435 = 15660$$

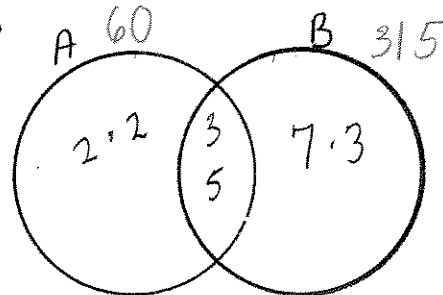
e.



Measurement

$$461 \div 3 = 153 R1$$

f.



$$GCF(315, 60) = 15$$

$$LCM(315, 60) = 1260$$

3. Consider this division calculation $38 \div 7 = 5$ R3 15 pts

a. Use this problem to show how division is related to each of the other three operations.

$$7 + 7 + 7 + 7 + 7 + 3 = 38$$

$$38 - 7 = 31; 31 - 7 = 24; 24 - 7 = 17; 17 - 7 = 10; 10 - 7 = 3$$

$$7 \times 5 + 3 = 35 + 3 = 38$$

b. Write a word problem (not using food!) using these numbers where the only reasonable answer is 6.

There are 38 people. Each table seats 7.
All must be seated. How many tables are
needed? measurement I need 6 tables.

1-4 tables may have fewer than
7 seated.

c. Is your problem partitive (partitioning into a number of groups) or Measurement (measuring out groups of a certain size)? Explain. Illustrate with a drawing.

Measurement



4. Use multiplication to explain the answer to these two problems. 10 pts

a. $6 \div 0 = a$

b. $0 \div 5 = c$

$$\frac{6}{0} = a \text{ means}$$

$$\frac{0}{5} = c \text{ means}$$

$$6 = 0 \cdot a$$

$$0 = 5 \cdot c$$

$0 \cdot a$ must be 0

c must = 0 because of

so undefined

the zero property of mult.

a is undefined

so $c = 0$

5. Given this number: 504 15 pts

a. Demonstrate (without doing the division) which of these are divisors: 6, 7, and 4, showing clearly why or why not.

5+4=9 504 is even
6/504 yes

504
8
42
7/42
7/504

4/04 Yes to all 3
50
4/504

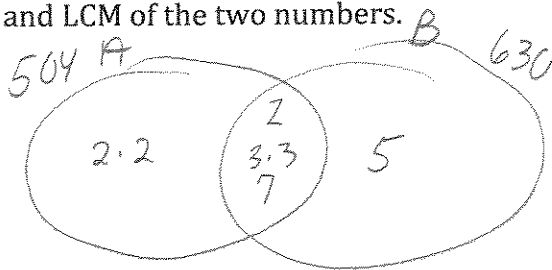
b. Write the prime factorization of the number.

504
4 x 126
2² · 2 · 63
2³ · 9 · 7

2³ · 3² · 7

c. Given that the prime factorization of 630 is 2 · 3² · 5 · 7

Determine the GCF and LCM of the two numbers.



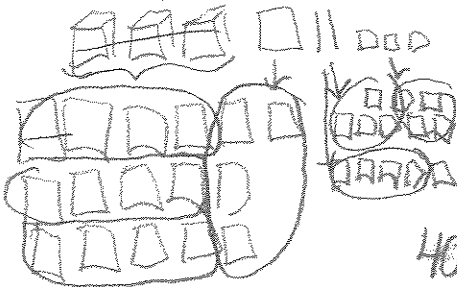
GCF = A ∩ B = 126
126 · 9 · 7
LCM = A ∪ B = 2520
126 · 20

d. If King Midas has 630 gold coins and 504 silver coins which he wants to put into identical stacks. Each stack will have only one kind of coin. He wants the stacks as tall as possible. How many coins will be in each stack? How many stacks will there be?

GCF (630, 504) = 126
126 coins per stack
5 stacks of gold
4 stacks of silver

6. Do one of these. Cross out one. Show work. 10 pts

a. 4_{five} | 3123_{five}



403₅ R 1₅

4 groups of 4 flats
0 groups of 4 longs
3 groups of 4 units
0.1

b. (13_{five})³

13
x 13
14
30
30
100
224₅
x 13
22
110
1100
2240
4022₅

	1	2	3	4
1	1	2	3	4
2	2	4	11	13
3	3	11	14	22
4	4	13	22	31

4022₅