

Math 141

section 5.2

Problem solving that uses greatest common factor or least common multiple.

(From 6th grade text book.)

(Some answers on back)



- LCM
1. Two buses leave the terminal at 8 am. Bus 36 takes 60 minutes to complete its route; bus 87 takes 75 minutes. When is the next time the two busses will arrive together at the terminal (if they are on time)?
 2. Ben exercises every 3 days and Isabel every 2 days. Ben and Isabel both exercised today. How many days in the next 30 days will they both be exercising on the same day?
 3. Nan takes 3 minutes to drive the course of a car-rally video game and return to the starting point. Claudio takes 4 minutes. If they start at the same time, how many minutes will pass until they cross the starting point at the same time?
 4. Bob plays tennis every other day, and Caroline plays every fourth day. Some days they compete with each other. If they both play on Monday, on what day will Bob and Caroline both play again?
 5. Two bike riders ride around in a circular path. The first rider completes one round in 12 minutes and the second rider completes it in 18 minutes. If they both start at the same place and the same time and go in the same direction, after how many minutes will they meet again at the starting place?
 6. By selling cookies at 24 cents each, Jose made enough money to buy several cans of pop costing 45 cents per can. If he had no money left over after buying the pop, what is the least number of cookies he could have sold?
 7. The radio station gave away a discount coupon for every fifth and sixth caller. Every twentieth caller received free concert tickets. Which caller was first to get both a coupon and a concert ticket?
 8. Samantha has two pieces of cloth. One piece is 72 inches wide and the other piece is 90 inches wide. She wants to cut both pieces into strips of equal width that are as wide as possible. How wide should she cut the strips?
 9. Rosa will make a game board that is 16 inches by 24 inches for a game she has invented. She wants to use square tiles. What is the largest tile Rosa can use?
 10. MENTAL MATH: Sean has six 12-inch pieces of toy train track. Ruth has eight 9-inch pieces of train track. When assembled, will both tracks be the same length? Explain.
- GCF

This is from module 5

List Times

answer is 1 pm

| | | | | | | | |
|----------------|------|------|-------|-------|-------|-------------|-----|
| <u>1st bus</u> | 8:00 | 9:00 | 10:00 | 11:00 | 12:00 | <u>1:00</u> | ... |
|----------------|------|------|-------|-------|-------|-------------|-----|

| | | | | | | | |
|----------------|------|------|-------|-------|-------------|------|-----|
| <u>2nd bus</u> | 8:00 | 9:15 | 10:30 | 11:45 | <u>1:00</u> | 2:15 | ... |
|----------------|------|------|-------|-------|-------------|------|-----|

or List minutes

| | | | | | | |
|---------|--------|---------|---------|----------------|----------------|-----|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| 1st bus | 60 min | 120 min | 180 min | 240 min | <u>300</u> | 360 |
| 2nd bus | 75 min | 150 min | 225 min | <u>300 min</u> | 375 | 450 |

300 minutes = 5 hours

8 am + 5 hrs = 1 pm

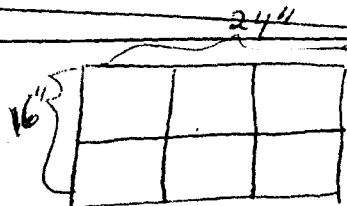
or $[LCM(60, 75) = 300]$

② $LCM(2, 3) = 6$ they exercise together every 6th day.

in 30 days = $\frac{30}{6} = \underline{5 \text{ times}}$ (in 30 days)

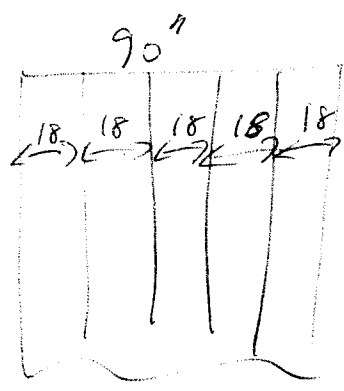
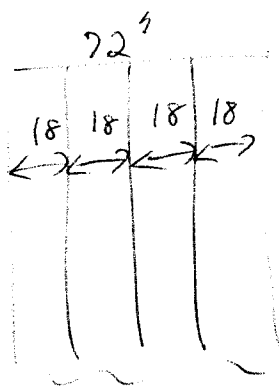
or make a list - they exercise together on the
6th, 12th, 18th, 24th + 30th days

9 $GCF(16, 24) = 8$



each tile is 8x8

8



$GCF(72, 90) =$

72 90
 ^ ^
 9 · 8 3 · 30
 ^ ^
 3 · 3 2 · 2 · 2 3 · 3 · 10
 3 · 3 2 · 5

$72 \div 18 = 4$
 $90 \div 18 = 5$

$GCF = 9 \cdot 2 = 18$ inches wide