

Extra Problems for Chap. 5

- ① Test the single number $\boxed{543,210,756}$ for divisibility by 2, 3, 4, 5, 6, 8, 9, 10, 11. Give a brief reason for each (don't just say "YES" or "NO")
- ② Answer TRUE or FALSE. If FALSE, provide a counter-example.
- (a) If $12|a$, then $3|a$
 - (b) If $2|a$, then $4|a$
 - (c) If $5|(a+b)$, then $5|a$ or $5|b$
 - (d) If $5|a$ and $5|b$, then $5|ab$
 - (e) If $4|a$ and $8|a$, then $32|a$
- ③ (a) In the TEST FOR PRIMENESS, what primes need to be checked for the numbers 259 and 263? (the list is the same for both)
(In (b) or (c), if you say "PRIME", clearly illustrate how you're doing the TEST)
- (b) Is 259 PRIME or COMPOSITE? Why?
 - (c) Is 263 PRIME or COMPOSITE? Why?
- ④ If $a = 2^2 \cdot 5 \cdot 11^5 \cdot 13 \cdot 23$
and $b = 2^3 \cdot 5^2 \cdot 7^2 \cdot 11^3 \cdot 23$,
find GCF(a, b) and LCM(a, b) (LEAVE your answers as prime factorizations in exponential form)
- ⑤ (a) Find GCF(9192, 96) using the EUCLIDEAN ALGORITHM
Show all work
(b) Using your answer to (a), find LCM(9192, 96) (indicate what formula you're using)

IN PROBLEMS ⑥ AND ⑦, CLEARLY SHOW HOW YOU EITHER USE GCFs OR LCMs IN YOUR SOLUTIONS

- ⑥ A plane leaves from Burbank airport for San Francisco at 8:00 am and every 42 minutes thereafter. A plane also leaves from LAX for San Francisco at 8:00 am and every 54 minutes thereafter. What is the first time after 8:00 am that San Francisco bound planes leave Burbank and LAX simultaneously?
- ⑦ Mark has 90 blue, 120 green, and 225 white marbles. He wants to put all the marbles into bags, putting the same number of blue in each bag, the same number of green in each bag, the same number of white in each bag (each bag will contain all three colors of marbles). What is the greatest number of bags he could use?