

1. From the set of digits provided below, create, if possible, a 5 digit number (with 5 different numbers) that meet the criteria stated. (If something is impossible, explain why.)

Digits to choose from: 0 1 3 6 7 8

- a) divisible by 5

 - b) divisible by 4

 - c) divisible by 4 and by 8

 - d) divisible by 4 but not by 8

 - e) divisible by 3

 - f) divisible by 3 but not by 2

 - g) divisible by 8 and by 5
2. Suppose $b = 3^5 \cdot 5^{12} \cdot 17^4$
- a) is b a composite number?

 - b) is b a multiple of 75?

 - b) is 25 a multiple of b ?

 - c) is b even?

- d) does 7 go into b with no remainder?
 - e) is b a multiple of 6?
 - f) is 5^{12} even?
3. Suppose $m = 2^7 \cdot 11^5 \cdot p^3$, where p is a prime number that is larger than 11. Indicate whether each statement is true or false:
- a) p is a factor of m
 - b) $2m$ is a factor of p
 - c) 22 is a multiple of m
 - d) 121 is a factor of m
 - e) $11p$ goes into m with no remainder
 - f) m is a multiple of $8p$
 - g) p ends with a zero (in the ones place)
 - h) m ends with a zero (in the ones place)
 - i) p is odd
 - j) m is odd
 - k) m is divisible by 3
 - l) m is divisible by 14
 - m) 12 is a factor of m
 - n) $121p^2$ is a factor of m