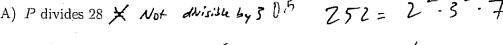
Quiz 5A, MTH 2010 - No Calculators

Dr. Graham-Squire, Fall 2014

- 1. (3 points) P is a prime number that divides 252. Which of the following must be true? Explain your reasoning and/or show your work.
 - 252 = 2²·3²·7 (A) P divides 28 X Not dissuby 3 05



(B) P divides $42 = 2 \cdot 3 \cdot 7$ (C) $P \text{ divides } 63 = 3 \cdot 3 \cdot 7 \times Not div. by <math>2^{0.5}$

(D) P divides 72 = 2 × Not chis.14 by 70.5

=> 1 Number must be divisible by

2, 3 or 7 0.5

2. (2 points) What is the 100th digit to the right of the decimal place in the decimal expansion of the fraction $\frac{317}{999}$? Explain your reasoning and/or show your work.

$$\frac{317}{999} = 0.317317317...$$

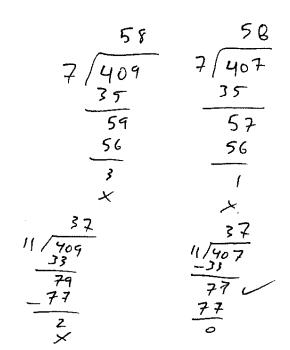
Every 3rd digit repeats, and when divisible by 3 it is a 7 => 99th digit is a 7, so next one is

- 3. (3 points) Exactly one of the numbers below is a prime number. Which one is it? Explain your reasoning and/or show your work.
 - (A) 417 X div by 3 b/c 4+1+7=12
 - (B) 415 × div. by 5
- (C) 412 X div. by 2

 (D) 409

 (E) 407 X div. by 11

 Not div.



4. (2 points) The prime factorization of 1239 is $3 \times 7 \times 59$. How many factors does 1239 have, including 1 and itself? Explain your reasoning and/or show your work.