

Math 221-001 201710
Assignment # 6

Due: March 10th 2017

1.
 - (a) Find the remainder when 8^{4325} is divided by 3;
 - (b) Find the last two digits of 8^{4325} .
2. Is $6^{17} + 17^6$ divisible by 3? By 7?
3. Solve
 - (a) $3x \equiv 1 \pmod{13}$;
 - (b) $54x \equiv 17 \pmod{13}$;
 - (c) $57x + 7 \equiv 78 \pmod{53}$.
4. Prove that if m is an integer, then either $m^2 \equiv 0 \pmod{4}$ or $m^2 \equiv 1 \pmod{4}$ (Hint: prove it separately for m even and for m odd).