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22C:019 Homework 2

$\wedge \vee \neg \rightarrow \leftrightarrow \exists \forall$

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14a.  $c = 10$

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40.  $n^2 = 1 \pmod{8}$ ;  $n = 4k+1$

$n^2 = 16k^2 + 8k + 1$

$= 16k^2 \pmod{8} + 8k \pmod{8} + 1 \pmod{8}$

$n^2 = 1 \pmod{8}$

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14. 1, 5, 7, 11

24b.  $2 \times 3 \times 11$

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32d. 139

32e. 1

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20.  $= 17 \pmod{60}$ ;  $x = 60k + 17$

34 (show all steps).

$23^{1002} = (23^{40})^{25} \times 23^2$

$= 529 \pmod{41}$

$= 37 \pmod{41}$

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28a. 1

28c. 5

30. all numbers detectable unless:  $1 \leftrightarrow 7$ ,  $1 \leftrightarrow 8$ ,  $2 \leftrightarrow 9$

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2b. NOJK KJGGPODJI

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24. 2299 1317 2117

26. SQUIRREL