Reminders

- Today is the last class meeting. ☹
- Please fill out the course evaluation form at `http://www.math.tamu.edu/`.
- The final exam is Thursday, May 4, from 3:00 to 5:00 in the afternoon, in this room. The exam covers
  - Chapters 1–4, and
  - Sections 5.1–5.4.

  As usual, please bring your own paper to the exam.
- Next week, I will hold my usual office hour on Monday and Wednesday afternoons from 2:00 to 3:00.

Follow-up on Exercise 18 in §5.4

Prove that if a is a positive integer of the form $4n+3$, then at least one prime divisor of a is of the form $4n+3$.

Proof by contradiction.

Suppose a has no prime divisor of the form $4n+3$.
Since a is an odd integer, there is no divisor of a of the form $4n$ or of the form $4n+2$.
Therefore every prime divisor of a has the form $4n+1$.
But the set of integers of the form $4n+1$ is closed under multiplication: namely,

$$(4n_1+1)(4n_2+1) = 16n_1n_2 + 4n_1 + 4n_2 + 1 = 4n_3 + 1.$$

Therefore no integer a of the form $4n+3$ can be obtained by multiplying primes of the form $4n+1$. $\square$

Review

List the main topics and concepts starting with the letters:

1. a, f, k, p, u
2. b, g, l, q, v
3. c, h, m, r, w
4. d, i, n, s, x
5. e, j, o, t, y, z